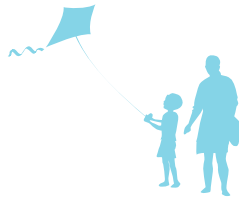


Guide for Creating an Asthma-Healthy Home

Indoor environmental control tips from the **asthma & allergy friendly™** Certification Program



www.ASTHMyths.com
Get the Facts about Asthma

Table of Contents

I. Introduction

II. Common Indoor Asthma Triggers

III. Home Guide

- Outfitting a Home
- Cleaning and Maintaining a Home
- Building or Remodeling a Home
- Room-By-Room Tips

IV. About AAFA and ASL

V. Other Resources

VI. Sources

Made possible through a partnership with Merck & Co., Inc. (Whitehouse Station, NJ)

Introduction



ASTHMyth:

Asthma triggers are found mostly outdoors.

Fact:

Asthma triggers can be found everywhere — outdoors, at work, and inside the home.

According to the U.S. Environmental Protection Agency (EPA), indoor air can be significantly more polluted than outdoor air.¹ Since it is estimated that Americans spend 90% of their time indoors, indoor air quality (IAQ) is important, especially if you have asthma.²

Learning How to Control Your Environment

More than 20 million American children and adults have asthma, the #1 chronic disease among children in the U.S. and a leading disease among adults.³ [People with asthma should talk to their physician](#) about developing a comprehensive asthma action plan that includes information on treatment, emergency care, and prevention tips, such as how to reduce exposure to common asthma triggers.

Reducing the sources of triggers, and exposure to triggers is called “[environmental control](#),” and is a cornerstone of modern asthma management.

Practical Advice for Creating an Asthma-Healthy Home

The Asthma and Allergy Foundation of America (AAFA) and Allergy Standards Limited (ASL) are the joint partners behind the [asthma & allergy friendly™](#) Certification Program. Merck & Co., Inc. has partnered with these groups in order to create a guide which provides environmental control tips you can use all year long.

The tips included in this guide are not intended to replace the advice of a physician. This guide provides information to help reduce exposure to possible asthma triggers in your home.

Common Indoor Asthma Triggers

Floors, walls, window sills, toys, pets, bedding, carpets, curtains, furniture, basements, attics, air ducts and garages can all be sources of asthma triggers.

Allergens – In many people with asthma, their asthma symptoms can be caused by exposure to certain triggers called “allergens.”⁴ Household allergens can be found in mattresses, pillows, rugs, furniture, plush toys, bathrooms, basements, attics, air ducts, and more.

Some common allergens in the home include:⁵

- ◆ **Dust mites**
- ◆ **Mold**
- ◆ **Pet or animal dander**
- ◆ **Cockroaches**
- ◆ **Pollen**

Irritants – Asthma symptoms can also be caused by exposure to some triggers called “irritants,” a variety of particles that can pollute indoor air and disturb or irritate the airways in the lungs. Many household irritants can be found in certain types of paints, varnishes, waxes, solvents, cleaning products, pesticides, cosmetics, fuels, and more.

Some common irritants that can be found in the home include:⁶

- ◆ **Volatile organic compounds (VOCs)***
- ◆ **Tobacco smoke**
- ◆ **Fireplace smoke**
- ◆ **Strong fumes and odors**
- ◆ **Wood dust**

** VOCs are gases from certain solids or liquids that can be found all around the house, many of which can trigger asthma symptoms if their levels are too high. Since the level of many VOCs can be higher indoors than outdoors – up to ten times higher – people with asthma should talk to their doctor to get more information on how to avoid VOCs.⁷*

VOCs include a variety of chemicals.

Common types of VOCs and a few select examples of where they may be found are:⁸

- ◆ **Aldehyde** (cleaning products, manufactured wood, plastics, resins)
- ◆ **Benzene** (lubricants, detergents, polymers, adhesives, plastics)
- ◆ **Chlorobenzenes** (pesticides, herbicides, rubber)
- ◆ **Polychlorinated biphenyl** (paints, sealants, cement, flame retardants)
- ◆ **Toluene** (paint thinners, inks, lacquers, disinfectants)
- ◆ **Trichloroethane** (metal cleaners, aerosol propellants, paint solvents)
- ◆ **Xylene** (fuels, varnishes, pesticides, paint thinners)

Home Guide

Outfitting a Home

When outfitting or decorating your home, there are sensitive choices you can make if you have asthma. Together, AAFA and ASL have developed a program to certify **asthma & allergy friendly™** products, which they have determined to be more suitable for people with asthma. Selecting the right kind of items to put into your house can help reduce your exposure to asthma triggers.

❖ Appliances

- Make sure to avoid unvented stoves of any kind (kerosene, wood or coal-burning) and gas space heaters.
- Make sure proper ventilation minimizes back drafting when installing large appliances.

❖ Finishes & Coatings

- Look for low VOC or VOC-free products to keep irritants low when buying paints, stains, waxes, floor coatings, adhesives for certain flooring, wallpaper or carpeting, floor sealants, and other substances.

❖ Window Treatments

- Opt for blinds and shades rather than heavy drapes and curtains. Large fabric window treatments can easily trap dust, dirt and allergens and they can not be easily cleaned. Wood blinds and simple shades do not promote as much allergen accumulation and can be more easily wiped and managed from week to week.

❖ Room Air Filters

- Consider using portable room air filters, in addition to whole-house HVAC (Heating, Ventilation and Air Conditioning) systems, to help remove allergens and irritants from the air. Not all devices are created equal, however, so first be sure to find portable air cleaners that have HEPA (High Efficiency Particulate Air) filters.
- Remember to clean or replace the HEPA filters according to the manufacturer's instructions to keep it in working condition.

❖ Mattresses, Pillows, and Pillowcases

- Use dust mite-resistant mattresses and pillowcases to keep dust mites from getting into the mattresses/pillows.
- Look for high-quality pillows that have mite barrier properties. Also make sure pillows can stand up to frequent washing to help reduce dust mites.
- Replace mattresses every ten years and pillows every five years as millions of dust mites live in them.

Home Guide

❖ Plush Toys

- Look for fabrics and fillings that contain no allergenic materials or irritating chemicals, dyes or preservatives.
- Make sure to buy toys that can withstand frequent freezing and washing, as these are good ways to clean and remove allergens from plush toys.

❖ Furniture

- Avoid if possible furniture and shelving made from chipboard or manufactured wood as these may contain formaldehyde and other VOCs, which may give off a colorless gas that can irritate the airways.
- Keep soft surfaces dry and clean, and keep pets off furniture.

❖ Washing Machines

- Look for a washing machine that is able to reach a 130-degree hot water temperature to kill mites and eggs.⁹

❖ Pets

Cat and dog dander can cause serious asthma symptoms for many people, but so can birds and other types of pets. Pets may also carry many outdoor allergens inside the house on their coats.

- Never let your pet sleep on the beds or furniture: dog and cat dander is a primary food source for allergens.
- Give your pets their own sleeping spaces, and make sure to wash pet bedding weekly.
- Try to wipe down pets after long walks to minimize the allergens they bring into the house.

❖ Indoor Plants

The most allergenic pollen comes from wind-pollinating plants, and some indoor plant pollen can be problematic.¹⁰

- Speak with garden experts at the local plant store to find the best plants for indoors. Note that planters, soil, tree trunks and old leaves can be hiding places for indoor mold.
- Keep potting soil moist, but not soaked.
- Wipe down plant leaves that are indoors regularly with a dry cloth.
- Check for mold growth on the trunks of decorative indoor trees and wipe it off as soon as you find it.

Home Guide



Cleaning & Maintaining a Home

After new construction, remodeling or renovations, it's a good idea to have your home professionally cleaned to remove any remaining dust, debris, fumes or other triggers before you move in. But when cleaning and maintaining your home on your own, consider the tips below to help you keep triggers at bay.

❖ Dusting

- Use slightly moist cloths or special dry cloths to trap and lock dirt on hard surfaces.
- Avoid a feather duster as it will simply spread dust and allergens, rather than remove them.

❖ Vacuum Cleaners

Vacuum cleaners can be useful tools in managing indoor asthma triggers, but make sure you are not using a machine that spews more allergens and irritants than it removes.

- Make sure you use a vacuum that has effective pick-up of allergens from floor surfaces.
- Make sure the vacuum has a HEPA filter and that it has tight seams and seals so particles don't leak out while vacuuming.
- Make sure the vacuum creates only minimal exposure to vacuumed particles during canister emptying whether it's a bag or bagless model.

❖ Cleaning Solvents

Cleaning sprays can be helpful or harmful depending on their ingredients and uses.

- Try to find products with little to no chemical smells, scents or odors, no VOCs or gases and other potential irritants.

❖ Pesticides

Although rodents and insects are common household asthma triggers, using some pesticides to kill them isn't necessarily good either.

- Talk to an exterminator about traps and solvents that are more suitable for people with asthma.

Home Guide

Building or Remodeling a Home

When building or remodeling a home, the dust, debris and fumes can make breathing difficult, especially if you have asthma. But the raw materials used to build your new home can also have an effect on people with asthma.

❖ Before you start, when possible:

- ✓ **Plan** the work step-by-step ahead of time.
- ✓ **Use** an experienced contractor who is knowledgeable about construction, and if you can, someone who uses products that provide the highest level of protection.
- ✓ **Ask** your contractor or local building & hardware supply store for products and materials which may be more suitable for people with asthma.
- ✓ **Check** the VOCs included in the materials or substances used in home building and choose products with the lowest levels of VOCs.
- ✓ **Talk** with your remodeler or supplier about newer products which may release fewer VOCs.

❖ Floor & Wall Frames

- Be careful of plywood or pressed wood wall paneling, particleboard, frames, and fiberboard which may emit VOCs.
- Try to use hardwood flooring and frames instead.

❖ Windows & Doors

Most of the moisture in your home makes its way in through windows and doors. Condensation on windowpanes, poor weather-stripping along windowsills and doors, and infrequent cleaning of these areas can allow water to pool and collect, making it easy for mold and mildew to grow.

- Make sure your windows and doors are properly sealed to prevent this condensation from collecting.

❖ Wallboard

- Use backer boards and wall coverings that are moisture- and mold-resistant, especially for bathroom and kitchen walls and ceilings.
- Try to avoid products, such as glass mesh cement backer boards, which generate unnecessary debris during handling and installation.¹¹

Home Guide

❖ Flooring

- Avoid wall-to-wall carpeting. Carpet is a common home for dust mites, which can trigger an allergic reaction in many people. Carpet is also difficult to keep dry and persistent hidden moisture is a breeding ground for mold.
- Make sure you vacuum frequently and immediately clean up spills and other moisture if you already have wall-to-wall carpeting.
- Choose hard-surface flooring. Opt for bare floors with small, washable area rugs, which are much easier to keep trigger-free.
- Make sure to read the labels of all materials when choosing hard surfaces.
- Choose floor varnishes and waxes with low-VOCs to lessen effects on asthma. Floor finishing products can cause a temporary reaction to the chemicals used in the process.

❖ Cabinetry & Furniture

- If possible, avoid furniture and cabinets made from pressed wood, particleboard or composite boards that are common in homes. Many of these items may release VOCs.
- Talk to manufacturers and installers about low-VOC options for your home.

❖ Whole-House Air Filtration

- Choose a good central HVAC (Heating, Ventilation and Air Conditioning) system with a replaceable or washable HEPA (High Efficiency Particulate Air) filter for a good way to help control indoor air quality.
- Make sure air ducts throughout the house are unobstructed and large enough to circulate air throughout the house when installing or replacing HVAC systems.

❖ Ventilation

In addition to air conditioning and air filtration, house ventilation is important to ensure that moisture from certain spaces – such as bathrooms, laundry rooms, kitchens – is minimized.

- Ventilate all rooms including basements, garages and attics, where solvents, chemicals and fuels are often stored.
- Make sure that all ventilation carries the air completely outside, not just to the attic, basement or garage.

❖ Humidity Control

- Keep household relative humidity (RH) lower than 50%. Higher humidity levels create a welcome environment for mold and mildew.¹²
- Consider using room de-humidifiers and whole-house humidity control systems if needed.

Home Guide

❖ Waterproofing

- Keep moisture from getting into the home. Wet or leaky pipes, windows, doors, basements, walls, etc. can allow water to collect making it easy for mold and mildew to grow.

❖ Storage

- Do not keep solvents, chemicals, paints, fuels and other such compounds in your garage, attic or basement. If possible, keep these types of items in sheds or other buildings that are exterior to your house. If you don't have off-site storage options, reconsider or at least reduce your need to store such items and make sure they are kept in well-insulated, temperature-controlled spaces.

❖ Landscaping

Since some of the most common indoor allergens are pollens from the outdoors, the plantings near your house do matter. You can't change Mother Nature, but you can work with her to manage your immediate landscaping.¹³

- Many species of wind-pollinated trees and grass are highly allergenic, so make informed choices about shrubbery and plantings.
- Avoid planting oak, birch and maple trees, and make sure that you plant the female (i.e. the non-pollinating) forms of plant species to keep pollen from easily getting into your home.

Other special considerations can be taken when remodeling or refinishing parts of your home to protect your family from potential asthma triggers.

- ✓ If you are doing the work yourself, always remember to wear a facemask approved by the National Institute of Occupational Safety and Health (NIOSH).
- ✓ Hang plastic sheeting over doorways leading to the area where work is being done. When you remove the sheeting, don't carry it through the house. Rather, make a chute in an open window to push out debris into a trash can so fine particles will not re-enter the room.
- ✓ Cover yourself with protective clothing, including a mask, goggles, and hairnet or cap. Put these things on as soon as you enter the work area and take them off before you leave the room being remodeled.
- ✓ Leave windows in the work area open after the project is finished. Air-out the area for at least three weeks after the work has been completed. Set fans in windows and exhaust indoor air to the outside. In northern climates, this technique is best implemented during warmer months, rather than in the winter.
- ✓ Stay out of your home during days of maximal dust/fume exposure and, if possible, until fumes have diminished or disappeared completely.

Room-By-Room Tips



Bedroom

Pet dander can settle on bed linens and becomes a food for dust mites. And even if you don't have an animal, pillows and blankets in the bedroom are frequently homes for mold and dust mites. In particular, mold is frequently found in mattresses and pillows and releases spores that can trigger asthma symptoms.

You can minimize this by:

- ◆ **Using** special mite-proof bedding including pillows and mattress/pillow encasings
- ◆ **Washing** sheets once a week in 130-degree hot water to kill dust mites and their eggs, and use bleach when washing to kill mold
- ◆ **Never allowing** pets on the bed
- ◆ **Never allowing** wet or moist clothing to pile up
- ◆ **Never eating** in the bed
- ◆ **Keeping** pet sleeping areas and/or bird cages out of bedrooms
- ◆ **Replacing** mattresses every ten years
- ◆ **Vacuuming** floors and furniture weekly

Children's Room

Allergens can hide in the most unlikely places: on stuffed animals, in drawers, on and under rugs. All of these things, of course, can be found in your kids' rooms. Dust mites, mold, and pet dander accumulate in and on children's toys, especially when pets play with them, and can trigger allergic asthma symptoms. Damp clothes, carelessly tossed aside after play, become a home for mold and mites in drawers and other dark places. The space underneath wall-to-wall carpeting is another refuge for mold.

Create a healthy room for your child by:

- ◆ **Using** special mite-proof mattress and pillow encasements
- ◆ **Washing** sheets once a week in 130-degree hot water to kill dust mites and their eggs, and use bleach when washing to kill mold
- ◆ **Washing** stuffed toys every four to six weeks in 130-degree hot water to kill mites and their eggs
- ◆ **Placing** unwashable stuffed toys in the freezer every four to six weeks for 24-hours to kill mites

Room-By-Room Tips

- ◆ **Keeping** kids' toys away from pets, and storing them in a covered, dry place where pets can't get them
- ◆ **Not allowing** your kids to sleep with stuffed toys (mites from the bed will get onto the toys, and vice versa)
- ◆ **Making sure** all clothes are fully dry before putting them in drawers and closets
- ◆ **Telling** kids to wipe their feet and shake out their coats before coming inside, to prevent outside pollen from coming in on their clothes
- ◆ **Telling** kids to put their clothes right in the laundry after coming in from the outdoors, rather than on the floor or back in drawers, to minimize pollen exposure

Kitchen

Cockroaches can be one of the main sources of allergens in the kitchen. Their droppings and even their microscopic sheddings are believed to be the most common allergens.¹⁴ Mold also finds its way into the kitchen, frequently, turning up under the sink, refrigerator, dishwasher and other damp spaces where it thrives.

Ways to keep asthma triggers out of the kitchen include:

- ◆ **Never** leaving food or garbage out to attract roaches
- ◆ **Storing** food in airtight containers in or out of the refrigerator
- ◆ **Wiping** the stovetop right after cooking to remove food particles that attract insects, and moisture that can lead to mold
- ◆ **Removing** crumbs and/or spilled items on countertops right away
- ◆ **Washing** dishes immediately after eating; don't pile in the sink
- ◆ **Using** a covered/sealed trash can in the kitchen
- ◆ **Keeping** stovetop items covered, and use the kitchen fan when cooking to keep steam and moisture from condensing on kitchen surfaces
- ◆ **Using** easy-to-clean kitchen flooring, and wash floor mats weekly to remove small food particles
- ◆ **Using** electric appliances where possible; otherwise, keep all gas appliance properly serviced

Room-By-Room Tips

Bathroom

Warm damp environments are breeding grounds for mold. As in the kitchen, you can often find it under the bathroom sink, as well as in the shower and on shower doors, towels, floor mats and tiles.

Tips for removing allergens in the bathroom include:

- ◆ **Removing** mold as soon as you see it anywhere in the bathroom
- ◆ **Fixing** leaky pipes under the sink, in the shower/tub, and behind the toilet
- ◆ **Using** a fan/vent when showering to keep air circulating and reducing moisture
- ◆ **Using** washable floor mats, and washing them weekly
- ◆ **Washing** the “show towels” and bath towels weekly to remove any mold spores
- ◆ **Wiping** the sink and counter each day to remove puddles of water and moisture
- ◆ **Avoiding** scented products like potpourri or air fresheners

Living Room

Dust mites find their way into furniture as easily as they do into beds: they lay eggs in upholstery and the carpet, and leave droppings and sheddings. Mold, too, can grow on upholstered furniture, as well as on curtains, drapes and carpeting. And although home scents and wood-burning fireplaces can give your living room a cozy appearance, they both release particles and chemicals that can irritate the airways.

Tips for removing triggers in the living room include:

- ◆ **Vacuuming** furniture, curtains and drapes once a week
- ◆ **Using** washable slip covers and cushions, and wash in 130-degree hot water frequently
- ◆ **Keeping** pets off of the furniture
- ◆ **Using** easy-to-clean flooring, and avoiding carpeting where moisture can get trapped and encourage mold growth
- ◆ **Using** blinds and other easy-to-clean window treatments, or washing and drying curtains once a month
- ◆ **Never** eating on the floor or on furniture where crumbs can attract roaches
- ◆ **Avoiding** wood burning fireplaces as well as kerosene heaters
- ◆ **Avoiding** candles and air fresheners

About AAFA and ASL

Asthma and Allergy Foundation of America

The **Asthma and Allergy Foundation (AAFA)** is a not-for-profit organization providing practical information, community based services and support through education, materials, and a national network of Chapters and educational support groups. AAFA also sponsors research to find cures and better treatments for asthma and allergic diseases.

Allergy Standards Limited, Inc.

Allergy Standards Limited (ASL) is a physician-led global certification and consulting company that prepares independent standards for testing a wide range of products.

The asthma & allergy friendly™ Certification Program

AAFA is partnering with the international research organization **Allergy Standards Limited (ASL)** to offer the **asthma & allergy friendly™ Certification Program** – the first program of its kind in the U.S. to write, publish and apply product standards for a wide variety of **asthma & allergy friendly™** consumer products. Allergy Standards Limited (ASL) is a physician-led organization that prepares independent standards for testing a wide range of consumer products to determine their suitability for people with asthma and allergies. The **asthma & allergy friendly™** Certification Mark assist consumers in choosing “friendly” products including plush toys, pillows, bedding, bedding barriers, vacuums, paints, flooring and more. The **asthma & allergy friendly™** Certification Program is a program that is independent from Merck & Co., Inc.

Other Resources

ASTHMyths Campaign

www.ASTHMyths.com

Asthma and Allergy Foundation of America

Information Helpline: 800-7-ASTHMA
(800-727-8462)

Email: info@aafa.org

www.aafa.org

Allergy Standards Limited, Inc.

Email: johnmckeon@allergystandards.com

www.allergystandards.com

Certified Products

To find Certified **asthma & allergy friendly™** products

Email: website@asthmaandallergyfriendly.com

www.asthmaandallergyfriendly.com

U.S. Environmental Protection Agency

Topics on Indoor Air Quality and healthy buildings

www.epa.gov/iaq

National Asthma Education and Prevention Program

National Heart, Lung, and Blood Institute Information Center

National Institutes of Health

www.nhlbi.nih.gov/about/naepp/index.htm

National Institute of Allergy and Infectious Diseases (NIAID) Office of Communications

National Institute of Allergy and Infectious Diseases National Institutes of Health

www.niaid.nih.gov/factsheets/allergy.htm

The information provided in this guide should not be a substitute for seeking responsible, professional medical care. People with asthma should always talk first to their doctor before making any changes.

Sources

- 1) **Environmental Protection Agency. Indoor Air Pollution: An Introduction for Health Professionals,**
<http://www.epa.gov/iaq/pubs/hpguide.html> [last accessed 03.07.08]
- 2) **Environmental Protection Agency. Indoor Air Pollution, Healthy Building Healthy People,**
<http://www.epa.gov/iaq/hbhp/>, [last accessed 03.22.08]
- 3) **Asthma and Allergy Foundation of America, Asthma Facts & Figures,**
<http://www.aafa.org/display.cfm?id=8&sub=42>, [last accessed 03.22.08]
- 4) **Asthma and Allergy Foundation of America, Asthma Overview,**
<http://www.aafa.org/display.cfm?id=8&cont=6> [last accessed 03.22.08]
- 5) **Asthma and Allergy Foundation of America, Asthma Overview,**
<http://www.aafa.org/display.cfm?id=8&cont=6> [last accessed 03.22.08]
- 6) **Asthma and Allergy Foundation of America, Home Remodeling,**
<http://www.aafa.org/display.cfm?id=9&sub=18&cont=231> [last accessed 03.22.08]
- 7) **Environmental Protection Agency, Basic Information: Organic Gases (VOCs),**
<http://www.epa.gov/iaq/voc.html> [last accessed 03/22/08]
- 8) **Asthma and Allergy Foundation of America, Home Remodeling,**
<http://www.aafa.org/display.cfm?id=9&sub=18&cont=231> [last accessed 03.22.08]
- 9) **Asthma and Allergy Foundation of America, Dust Mites,**
<http://www.aafa.org/display.cfm?id=9&sub=18&cont=228>, [last accessed 03.22.08]
- 10) **Journal Allergy, Volume 61, Issue 9, Page 1138, September 2006,**
<http://www.blackwell-synergy.com/doi/abs/10.1111/j.1398-9995.2006.01026.x>, [last accessed 03.22.08]
- 11) **Asthma and Allergy Foundation of America, Home Remodeling,**
<http://www.aafa.org/display.cfm?id=8&sub=17&cont=642>, [last accessed 04.21.08]
- 12) **Asthma and Allergy Foundation of America, Dust Mites,**
<http://www.aafa.org/display.cfm?id=9&sub=18&cont=228>, [last accessed 03.22.08]
- 13) **Asthma and Allergy Foundation of America, Pollen and Mold Counts,**
<http://www.aafa.org/display.cfm?id=9&sub=19&cont=264>, [last accessed 03.22.08]
- 14) **Asthma and Allergy Foundation of America, Cockroach Allergy,**
<http://www.aafa.org/display.cfm?id=9&sub=18&cont=227>, [last accessed 03.22.08]