

**Asthma
Eczema
Allergic Rhinitis**

The Essential Guide to

Allergen Control

In

Your Home

By

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The essentials of ALLERGEN CONTROL

- a** Fully enclose the mattress in a quality Allergen Barrier cover.
It is vital to fully enclose the mattress and not simply cover the top of it..
- a** Labels such as “Anti-Allergy”, “Hypoallergenic” or “Mite-proof” are not enough. It must be a true allergen barrier and carry an official “CE” mark.
- a** *Either* enclose pillows and duvets in a similar cover.
Or hot wash (above 55°C) pillows, duvets and pillows (not just their covers) at least monthly.
- a** All beds in shared rooms must be treated.
- a** Remove settled dust with a Damp cloth or mop, not a dry duster.
- a** Vacuum carpets regularly.
Make sure your vacuum cleaner has an exhaust filter
- a** Cuddly toys should be washable and hot washed regularly..... *Or be otherwise removed..*
- a** Reduce indoor humidity. Fit extractor fans to bathrooms, showers and over cookers. Tumble driers *must* be vented outside.
- a** Ban furry pets from the house.
And especially children’s bedrooms.

RESEARCH

Scientific research has shown that proper home allergen control measures can reduce allergen exposure, make a real difference to symptoms, clinical measures of disease severity and reduce the need for drug treatment.

Allergens in the home not only cause worsening of symptoms immediately after exposure to them, but also induce tissue inflammation and a state of irritability of the nose and lungs that often leads to acute attacks at other times (such as on exercise, inhaling air pollutants and strong smells). This hyper-irritable state (airway hyper-reactivity) may last several weeks after the last exposure to settle completely, so the benefits of control measures often take time to be appreciated. For this reason it is usually necessary to maintain full preventative drug treatment for several weeks.

Three groups of allergens cause all year round asthma, eczema and allergic rhinitis (“hay-fever”) ...About 95% of sufferers react to house dust... Many react to pets *especially cats*... and mould spores are a less common, but sometimes severe cause of attacks. HOUSE DUST is a very complex mixture which varies from home to home. Allergens produced by house dust mites are best known, but dust from a home which has never had a pet often has cat, dog and even horse allergens. Insect allergens (derived from cat fleas and cockroaches) have recently been found to be occasionally important.

The degree of problems experienced is related to both the level of a particular person’s sensitivity and the amount of allergen to which they are exposed. People who only have nose symptoms are usually less sensitive than those who also have asthma and may find that only a modest reduction in their allergen exposure will allow them to stop all medication. Asthmatics usually have a higher level of allergic sensitivity and need to be more vigorous in their allergen control efforts.

DUST MITES

Dust mites are tiny spider-like creatures (about 2 tenths of a millimetre long when fully grown) which are hardly visible with the naked eye. They live off the tiny skin scales we all shed each day and on other tissues such as feathers and wool.

Mites have 10 legs as opposed to an insects 6 and a spiders 8. House dust mites belong to a subgroup which colonise animal and bird’s nests. Perhaps not surprisingly they live in our beds, but can also be found in carpets, furniture, curtains and soft objects such as cuddly toys. They need warmth and moist air to survive. The combination of shed skin scales, body warmth and the perspiration we give off make our beds the mite’s ideal home.

Most adult patients get most of their mite allergen exposure in bed at night.

People are not actually allergic to dust mites themselves, but to the allergens they secrete. Several of these are in their dung particles, but the most important are probably on other, even smaller particles. Particles from 1 to 20 microns in size become airborne and enter the nose, eyes and lungs. Both they and larger particles can be rubbed into the skin by scratching eczema at night. Thorough vacuum cleaning of carpets can remove much of these residues, but will *not* remove the live mites, which hang on to the fibres with suckers and hooks on their legs. The allergens dissolve in water, but mites themselves will only be killed by wet heat over 55°C (this means the hot-wash cycle in most washing machines). Surprisingly, detergents can actually protect mites in the wash.

A different group of mites, *storage mites*, common in grain stores and barns can cause problems for farmers and grain handlers and can sometimes be found in flour and other grain products in homes. They can take the place of the usual house dust mites if indoor humidity is reduced. They have been found a particular problem in the rooms of students leaving too many biscuit crumbs on the floor!



PETS

Cat allergy is the most important pet sensitivity. It is very common and is occasionally severe. Also, cat allergen can last for years in carpets and curtains, long after the poor moggy has gone to a better place.

There is currently conflicting evidence about the risks of exposure to cat allergen in not yet sensitised children. Allergen exposure in the first three months of life has been associated with later development of eczema and asthma. In contrast, recent research has shown that children who grow up in close contact with animals, *including cats*, actually have a lower risk of asthma. What is definite is that, once a person has developed cat allergy, there is no answer but not to have a cat in the house.

The main cat allergen comes from grooming glands and the saliva. It is spread over the fur as the cat washes and then dries. This powder is very fine (down to less than 0.2 microns), which means it floats into the air as the animal moves, *or just purrs*. Cat allergen levels adequate to trigger asthma will be present throughout the room within 5 minutes of a cat entering and can then remain suspended in the air for at least 24 hours. It is so light that it may never fall to the ground, but instead stick to walls and ceilings by electrostatic forces. This means the walls need to be washed down to remove it, otherwise it may be stirred back into the air as one brushes past.

Beds and other places become impregnated with cat allergen, which is why cats should be banned from bedrooms. Like horse allergen, cat allergen can contaminate the clothes of someone who has merely visited a cat with cats. Indirect cat exposure of this kind may be a particular problem in schools. Cat-allergic people should also be cautious about second hand soft furnishings. Shampooing the cat does reduce its allergen load, but it is not practical to do this often enough to stop it being a problem.

Problems with rodents (rabbits, guinea pigs, rats and mice) are mainly related to proteins excreted in the urine. Again these dry to a fine powder, stirred up from the cage debris and straw as they scurry around. This is less of a problem with larger animals housed in the garden. Some apparent rabbit allergies in children with hay fever are sometimes actually due to the grass pollen in the straw.

MOULDS

Moulds and fungi quite commonly cause a form of hay fever in the autumn, when their spores are released in the damp weather.

Moulds, yeasts and fungi can grow and produce spores at any time of the year under appropriate conditions of damp and rot. Houses with mould problems also tend to have particularly high house dust mite levels. Mould allergy can produce particularly severe and intractable asthma, with the cause often being difficult to spot.

In general, heavy mould spore levels inside a house are unlikely unless there is some problem with damp. This may be due to rising damp, or to condensation or some other building defect in newer houses. Sometimes it is as simple as water penetrating a wall from outside due to a leaky downspout. Particularly when due to condensation, the fungi are obvious on surfaces. At other times they grow inside the structure of wood, wallpaper, or even plaster. In that case all that may be seen are dark pinpoint discolourations (which are actually the fruiting bodies releasing large numbers of microscopic spores).

Baths, showers and cooking generate steam and this moisture should be vented outside by an extractor fan. Tumble driers which are not properly vented outside can produce particular problems.

Moulds can also grow inside damp mattresses, potentially a problem when children wet the bed.

CONTROL METHODS GENERAL

No single measure can solve the dust allergen problem on its own. A combination approach is necessary and research shows that only vigorous allergen control measures really benefit clinical disease. However many of the measures which reduce one type of allergen also reduces levels of others.

In general, houses should be kept in a good state of repair and kept well ventilated. "Tight", energy-efficient houses may have particular problems unless some form of mechanical ventilation is introduced. Electrical de-humidifiers are useful in houses with specific problems with condensation. Mechanical air filtration can be useful in pollen and mould problems, but not for mite allergy. Ionisers have not been shown to be of benefit.

An ideal low allergen room would have sealed floors or lino and no carpets. Blinds are preferable to curtains. Otherwise, dust must be removed by extremely thorough vacuuming of carpets, soft furnishings and curtains. Other horizontal surfaces should be damp-dusted, or vacuumed with appropriate vacuum end-pieces. Vacuum cleaners must have sufficient power (at least 1000 Watts) and have an exhaust microfilter to prevent fine dust being blown back into the room. The Consumers Association regularly publishes reviews of vacuum cleaners in their magazine "Which". Consider the weight of the cleaner. In practice, if you cannot carry it up and down stairs easily, it won't get used often enough to be of any use!

Airing the house by opening all the windows for half an hour, twice a day, is an effective way of reducing average indoor humidity and the growth of moulds and mites.

CONTROL METHODS MITES

Reducing exposure to mite allergens is more important than affecting live mites themselves. Simply killing or reducing mite numbers will have no effect on allergens which have been accumulating for years.

Mite killing powders and sprays (*acaricides*) do not remove allergen. Mites quickly become resistant to them. Allergen denaturing agents, such as tannic acid, have also been shown to be of no clinical benefit. Many of these agents are potentially toxic and people can also become allergic to them. Many doctors are particularly concerned about their use in the beds of children and pregnant women.

Intensive vacuum cleaning of carpets will reduce mite and pet allergens, with little effect on live mite numbers. *To start with, it takes 5 minutes of constant vacuuming per square metre to remove more than 90% of mite allergen.* After that, more normal vacuuming several times a week will keep the levels low. Professional hot water cleaning is also effective, but DIY models tend to send droplets of dissolved allergen back into the air. Claims have been made for steam cleaners, but they usually do not get the temperature high enough to kill mites deep inside carpets and soft furnishings. Residual carpet dampness can actually *increase* mite numbers.

Low indoor humidity reduces mite growth. The natural moistness of our climate means it is extremely difficult to get indoor humidity low enough to completely stop mite growth. Sudden freezing with liquid nitrogen does kill mites, but putting cuddly toys in a domestic freezer usually does not. This is because the slow rate of temperature reduction drops the humidity so that the mites enter a form of suspended animation (*protonymph*), which can come back to life when humidity levels go up again.

When choosing armchairs and sofas, go for leather or similar impermeable coverings

YOUR BED

Dealing with your bed is the single most important aspect of effective allergen avoidance. House dust mites live deep inside mattresses, pillows and duvets. Their allergens are stirred up to be breathed in as we move about in our sleep. Bedding also often contains pet and mould allergens.

The bed is the source of most people's major mite allergen exposure. It is impossible to remove pre-formed allergens from the mattress. Vacuuming does not remove allergens from deep inside it. Therefore the mattress *must* be *totally* enclosed in an **effective allergen barrier**.

Plastic/vinyl covers are "sweaty" since we all lose water as perspiration even at rest and asleep. Vapour permeable covers such as **alprotec** are now available, providing *both* a complete barrier to all known allergens and allowing body moisture to escape. The covers are used between the mattress, pillow or duvet and your usual sheet, pillow case or quilt cover.

Several different materials are now offered as allergy bedcovers, but some have limited water vapour permeability. Check that the product has a minimum permeability index of greater than 75% according to British Standard 7209. Some, such as terry-towelling or untreated cotton, can become colonised by mites and therefore need to be washed regularly at above 55°C. Some, like **alprotec** have waterproof and soil-resistant outer coatings and therefore rarely need to be removed for washing.

Some "protectors" leave the bottom of the mattress open and research studies show that no clinical benefit is achieved.

It is essential that the mattress is enclosed completely by a cover with properly constructed seams and zip seal.

There is a choice between enclosing pillows and duvets in similar covers and *regular* hot-water washing of the whole item, not just the outer cover.

All pillows on the bed need covering, not just the sufferers own.

Many so-called anti-allergy products sold in the UK are useless as allergen barriers. Beware of products calling themselves "Anti-Allergy", "Dust Mite Proof" and "Hypoallergenic". Stopping something as big as a whole mite may still freely allow through allergens. Hypoallergenic materials can be colonised by mites as easily as any others. Claims that cotton, or artificial microfibres, can be woven tightly enough to prevent the passage of allergens are very dubious. The published experiments on which they are based only looked at a single allergen overwhelmingly carried on particles too big to enter the lung. A true barrier should be effective throughout the "respirable particle range", between 0.5 to 20 micron s.

Legally, bedcovers sold to treat disease are "Class 1 Medical Devices" and should carry a CE mark to show they meet minimum standards of effectiveness. Do not purchase covers without the re-assurance of this certification.

Cheap plastic covers are often a false economy. Some do work at the beginning, but soon split or fall apart. Reputable manufacturers will guarantee years of effective use.

Patients with eczema usually find air-impermeable duvet covers cause intolerable itching. There is also a theoretical risk that young children could be suffocated if they climbed inside one. Some plastic "allergy" covers claim to be air permeable, but do not reach the levels of air permeability considered safe in infancy. Most also let through particles in the lower respirable particle range. **Alprotec airflow** is unique in allowing a free flow of air, while capturing allergens as they pass through it's electrostatic interior.

HAY FEVER & ASTHMA TIPS

Hay Fever and Hay Asthma are caused by pollens of wind-pollinated trees (in the spring), grasses and sometimes weeds (in the summer). These can be carried in the air for hundreds of miles. Mould spores released into the air in autumn can cause similar problems.

Pollen counts are lowest at dawn and then rise progressively throughout the day, usually to peak at about 11.30 pm. Hay asthma is commonest on hot nights. Circulating air currents in cities with high buildings can alter this pattern of peaks and troughs and city air pollen counts can actually exceed those in the open country.

Pollen is washed out of the air rapidly by rain. Masses are released at the start of the next sunny spell, so take medication before the symptoms get bad. The longer the preceding rainy period, the higher the pollen count will be.

Steroid preventative nose sprays take up to two weeks of regular use to be fully effective. If you leave starting to take them until your symptoms start, your nose may be too blocked for them to get in. They are most effective if you start the spray two weeks before the pollen season starts (which will depend on where you live, earlier in the South, later in the North).

Exercise is best taken early in the morning. Pollen masks are useful for gardeners, cyclists, etc. A fast flow of air causes pollen to impact on the surface of the eye. Wearing goggles, or even sunglasses, helps. Keep the windows closed when driving. Consider a pollen filter when choosing a new car.

Air filtering machines are helpful indoors, but are expensive and the windows need to be kept closed. Pollen counts are highest on hot nights, when we want the cooling breeze of an open window. **Window-filta** is cheap but an effective pollen and spore filter which can be fitted to your window.

SPECIAL MEASURES FOR YOUNG CHILDREN

The predisposition to asthma, eczema, hay fever, food and other allergies is inherited as a group in 30% of all races. Environmental factors are clearly critical in determining whether or not we go on to develop the clinical conditions. Only me of these are currently understood.

Allergen avoidance in the first months of a child's life may help prevent later problems.

A single smoker in the house doubles a baby's risk of asthma later in life.

Tobacco smoke commonly triggers acute attacks in asthmatic children.

Allergen barrier mattress covers should not be used before 6 months.

Pillows should not be used under 12 months

Washable pillows and cellular blankets are preferable to quilts or duvets under 3 years

Playing on beds stirs up allergens. All beds in a room need attention, not just the sufferers own.

Avoid bunk beds as allergens fall from the top to the lower bed

Buy only hot water washable cuddly toys and wash them regularly

This booklet is provided as a service by
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ABOUT ADVANCED ALLERGY TECHNOLOGIES LTD

We are a medical company founded in 1990. We are registered with the UK Medical Devices Agency as manufacturers of medical devices. We manufacture our products in our dedicated facility in Halifax, West Yorkshire.

We introduced **alprotec** the world's first fully water vapour permeable allergen barrier membrane in 1991. **alprotec** is based on a strong high quality woven poly-cotton. Inside, it has a microscopically thin membrane of polyurethane. The combination of the hydrophilic properties of this particular polymer and its thinness, gives it exceptional water vapour permeability..... more than 10,000 gm water/metre²/24 hours—over 90% by BS 7209.

alprotec provides a 100% barrier to house dust mite *Der p 1* and cat *Fel d 1* allergens.

Independent tests show that even after 10 washes at 60°C (unlikely ever to be needed, as the outer surface is treated to resist soiling), it remains a 100% barrier to particles larger than 3 microns and 99% effective for particles between 0.5 and 3 microns.

Our patented **airflow** bedding system received the Design Council's Millennium Award For Innovation in 1999. Its unique Allergen Capture Medium allows virtually unimpeded flow of air, while removing at least 99% of *Der p 1* and *Fel d 1*. This provides greater comfort for pillows and duvets than any other allergen barrier system.

Window-filta uses the same electrostatic technology as **airflow**. Just stick the eye dots to the window frame and the **Window-filta** can be taken on and off to filter out pollen, mould spores and other airborne particles from a free flow of air through your open window.

Unique new textile helps eczema. **Padycare** baby, child and adult clothing and bandages containing pure metallic silver have been shown to kill the bacteria that colonise the skin, and to improve eczema. **Also** a full range of knitted natural silk baby and infant wear. Superior to cotton, particularly for eczema and other sensitive skin problems, soft gentle and soothing - cooler in summer and warmer in winter. And pretty colours too.

We attempt to keep the information in this booklet accurate, unbiased and up to date with scientific knowledge and advances. If you have any comments or suggestions on how it can be improved, please write or email david@allergy.uk.com
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