

Asthma and Allergy

A guide to the management of allergy for those living with asthma



Patient and Family Education

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Asthma and Allergy

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What is Asthma?

Asthma is a disease of the airways, the small tubes which carry air in and out of the lungs.

When exposed to certain asthma triggers (such as cold air, exercise, pollen, and viruses) the sensitive airways react. They can become red and swollen (inflamed) which causes the airway muscles to tighten and produce excess mucus (phlegm). This makes the airways narrow and difficult for a person to breathe.

Common asthma symptoms include:



Shortness
of Breath



Wheezing



Coughing



A feeling of
tightness in the
chest

Asthma is a manageable health condition. Although at the moment there is no cure, with good asthma management and education, people with asthma can lead normal, active lives.

Asthma and Allergy Facts

Asthma is a significant health problem in general.

What is Allergy?

Allergy occurs when a person's immune system (the body process that protects against disease) reacts to substances in the environment that are usually harmless to most people, these substances are known as allergens. Examples of allergens include house dust mites, pollen, molds, and pet dander. Sensitivity to allergens can often be identified via blood or skin tests.

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Other substances such as perfumes, odors, or cigarette smoke can also trigger asthma in some people, but these do not involve a reaction in the person's immune system, these are called non-allergic irritant triggers, and there is no skin or blood tests for these triggers.

Allergy may run in families, 'Atopy' is the genetic or inherited tendency to develop allergic diseases.

When people with allergic tendencies (atopy) are exposed to allergens, they can develop an immune reaction that leads to allergic inflammation (redness and swelling).

This can then cause symptoms in the:-



Nose and/or Eyes
– allergic rhinitis/
conjunctivitis
(hay fever)



Skin
eczema, hives



Lungs
asthma

What role does allergy play in your Asthma?

If you have asthma that is triggered by allergens, you may have asthma symptoms when you:-

- Vacuum or dust, as this causes house dust mite allergens to become airborne.
- Visit a house where a pet lives.
- Are outdoors in late spring and early summer, and when there are high levels of pollen in the air are exposed to mold?

It can also be triggered by workplace-related allergens such as flour and grain dust, latex, and animal allergen (e.g. urine, dander).

Because of this close link between asthma and allergy, it can be more difficult to manage your asthma if your allergies are not managed well also.

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However, unlike other asthma triggers such as colds and flu, it might be possible to avoid or reduce your exposure to some allergen triggers of your asthma.

Allergy Tests

It is important to work out which allergens in your environment trigger your asthma; Avoiding or reducing your exposure to these allergens may be an important part of managing your asthma.

Your doctor will ask your questions to identify possible allergic triggers and order or perform allergy tests.

The two main allergy tests are skin prick tests, and blood tests for serum specific IgE (previously referred to as RAST tests), these tests identify antibodies to specific allergens.

Sometimes an alternative testing method is used, called scratch testing. It is often used when greater sensitivity in the testing is needed.

Your doctor cannot rely on these test results on their own, so he or she will also consider your test results along with your medical history. Your doctor may refer you to an allergy/immunology specialist for further tests.

Allergy tests should only be performed by a doctor or nurse who has been trained in the procedure, and knows how to interpret the results.

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Immunoglobulin E Radio Allergo Sorbent Test.

Skin prick tests

Skin prick testing is performed at your doctor's office or medical clinic.

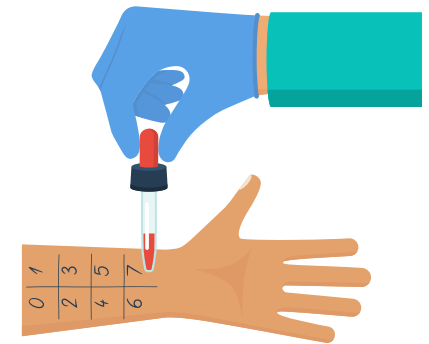
These tests:-

- Are the most sensitive tests for confirming allergic triggers for asthma
- Are generally safe and quick

Skin prick testing is usually done on the forearm, although it is sometimes done on the back instead, A drop of allergen extract is placed onto a marked area of skin and then a small prick through the drop is made, This allows a small amount of allergen to enter the skin.

If you are allergic to the allergen being tested, a small red lump or wheal will appear after 15–20 minutes, your doctor will advise you as to what happens next.

Certain medicines such as antihistamines need to be stopped 5 –7 days before skin prick testing.



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Blood tests for serum specific IgE (previously known as RAST tests).

Serum specific IgE allergy tests are blood tests.

Those tests:-

- Can diagnose all types of allergy, but provide less specific results than skin prick testing are useful when skin prick testing cannot be used due to health or other reasons.
- Can be done if you have forgotten to stop taking antihistamines prior to testing, are taking tricyclic antidepressants or pizotifen (for migraines), or you have certain skin rashes/conditions.
- Are useful if you have an unusually high risk of anaphylaxis, e.g. if you have had it before. Once your allergic triggers are identified, avoiding or reducing exposure to these allergens may reduce the chance of you having severe asthma attacks and help your lungs to work better.

How can you avoid Allergens?

The most common allergic triggers of asthma are house dust mites, pets, pollen and mold.

Even though complete allergen avoidance does not cure asthma, reducing exposure to your allergen triggers may improve your asthma control and make your asthma symptoms easier to manage. Bear in mind that efforts to avoid or reduce allergen exposure can be costly, time-consuming or impractical.

Efforts to reduce or avoid allergen exposure are best attempted if:-

- Your doctor has advised you that you have a proven allergy to the trigger.
- Exposure to that trigger causes your asthma symptoms.
- You are motivated to try several allergen exposure reduction measures following just one measure is unlikely to make a difference.

Remember, allergen avoidance or reduction strategies should be used in combination with your recommended medicines and do not replace your doctor's advice.

While allergy avoidance measures help to reduce exposure to allergen triggers, using your asthma medications as directed is a cheaper and more effective way of dealing with your asthma.

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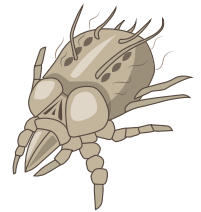
House dust mites

House dust mites are the most common allergic trigger for asthma in Australia. They are microscopic creatures that feed off skin scales, and thrive in temperate and humid climates.

How can house dust mite levels be reduced?

If you are allergic to house dust mites you may be advised to take measures to:

- Kill house dust mites.
- Remove the allergen they produce.
- Reduce areas where they live and breed.



Bedding

The greatest exposure to house dust mites is from your bedding. Ways to reduce house dust mite exposure include:-

- Use mite-impermeable covers on mattresses, pillows and quilts –it should fully encase the item they are protecting, be washable and be washed periodically
- Wash bed linen (pillow cases, sheets, Donna covers) in a hot wash (over 55°C) every week.
- Use bedding products (e.g. pillows) manufactured with anti-microbial treatments that suppress fungal growth and dust mites.
- Avoid blankets or Donnas that cannot be regularly washed or encased.
- Remove unnecessary bedding such as extra pillows and cushions where dust mites might live/breed.
- Remove soft toys, or washing them in a hot wash (over 55°C) on a weekly basis.

A hot wash will kill dust mites and remove their allergen, Cold washing followed by hot tumble drying, once items are dry, will kill dust mites, Dry cleaning will similarly kill dust mites, but like cold washing with a hot tumble dry, will not remove the allergen.

General cleaning

Where possible, the person with asthma should leave the room when household cleaning (in particular vacuuming) is being carried out, and for at least 20 minutes afterwards.

Some suggestions include:-

- Vacuum rugs and carpets weekly using a vacuum with a high-efficiency particulate air (HEPA) filter.
- clean hard floors weekly with a damp/anti-static cloth, mop or a steam mop, and dust weekly using a damp or anti-static cloth.
- Consider venetian blinds or flat blinds, which are easier to clean than heavy curtains, Washable curtains or external shutters are other options.

Other measures

While removal of carpets in favor of hard floors is sometimes recommended, this has not been shown to reduce the level of house dust mite exposure in the home. Consider thoroughly and regularly vacuuming using an appropriate appliance first (such as one with a HEPA filter), before considering this more drastic step.

Some modern carpets are manufactured with anti-microbial treatments which may also help.

Reducing humidity in the home is also worth considering – aim for a dry and well-ventilated house with adequate floor and wall insulation. Air conditioners or dehumidifiers (but not evaporative coolers) may be beneficial, particularly in more humid areas as they lower the relative humidity.

Pets



Exposure to pets (e.g. cats, dogs, guinea pigs, horses, rabbits, mice, rats) at home or work can trigger asthma in some people.

Cats and dogs are a major source of allergens in the home environment. The allergens come from the sweat glands in cats and salivary glands in dogs. As all cats and dogs have sweat and salivary glands, all breeds have allergens. However, the amount of allergen released can vary between breeds.

As allergens are stuck to the hair and skin of pets, the allergens become airborne when the pet sheds their hair. The allergens can remain airborne for some time.

Cat allergen is especially difficult to remove from houses. It can remain in the house for months after the cat is removed. Cat allergen can be found in places where cats have never lived. For example, it can be carried around on clothing to schools and offices.

Pet allergen avoidance

The most effective method of allergen avoidance for people with asthma who are allergic to cats or dogs is to not have these pets in the home.

Therefore if your existing pet is causing significant allergy or asthma problems, unfortunately your pet may need to be re-homed with another family.

However, as a first step, your pet should be kept outside most or all of the time, making sure it has a safe and warm home outdoors. If your pet must be kept inside, it should be limited to one area of the house and should not be allowed into the bedroom of the person with asthma.

Other allergen reduction measures include:

- Washing hands after touching or feeding pets, and washing clothing, pet and human bedding regularly in hot water (over 55°C)
- Keeping pets off carpets, rugs and soft furnishings
- Vacuuming carpets, curtains and upholstery regularly using a vacuum with a motorized brush and a HEPA filter
- Cleaning hard floors with a damp/anti-static cloth or a steam mop, and cleaning heating or air-conditioning ducts
- Grooming pets regularly (where possible, the person with asthma should not be in the same room)
- Washing pets regularly, but not more than the vet recommends.

Pollen



Allergy to airborne pollen, grains from certain grasses, weeds, and trees is common in people with asthma in Australia. Pollen counts are highest on hot still, or very windy sunny days.

Exposure to pollen:-

- May make asthma symptoms worse during the pollen seasons.
- Can cause asthma flare-ups after thunderstorms (as the moisture releases smaller starch granules that may be inhaled deep into the airways).
- Is usually caused by imported grasses, weeds and trees, which are wind pollinated – the pollen can travel many kilometers from its source.
- Is not usually caused by Australian native plants.
- Is not usually caused by highly flowered plants as they produce less pollen (which is transported by bees) than wind pollinated plants.

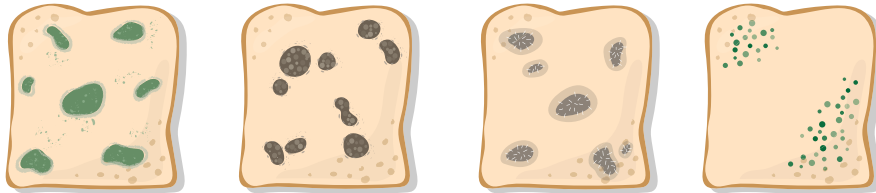
Pollen allergen avoidance

Completely avoiding pollen can be difficult during the pollen season, but the following steps may help reduce exposure:-

- Avoid going outdoors on days with high pollen counts (particularly 7–9am and 4–6pm), on windy days or after thunderstorms.
- Keep car windows closed, ensuring the vehicle has a pollen cabin air filter and setting the cabin air to recirculate
- Shower (or wash face and hands thoroughly) after being outside with exposure to pollen.
- Dry bed linen indoors during the pollen season.
- Holiday out of the pollen season or at the seaside.
- Do not mow the grass, and stay inside when it is being mown.
- Wear a facemask and/or glasses in special situations where pollen can't be avoided, e.g. if mowing is unavoidable.
- Remove any plants from the garden that are causing sensitivities, and consider planting a low allergen garden.

Contact your local Asthma Foundation or talk to your local nursery for information on low allergen gardens.

Mold



Exposure to indoor and outdoor areas that are damp and have mold can trigger asthma symptoms in some people.

Mold avoidance measures

Air filters and ionizers have been shown to reduce airborne mold, but how this affects asthma control is uncertain.

Measures that may reduce mold exposure include:-

- Removing visible mold by cleaning with bleach or other mold reduction cleaners. If you are sensitive to strong odors, wear a mask or ask someone else to do this for you.
- Using high-efficiency air filters – these may be integrated in air-conditioning, heat-recovery ventilation systems, or in stand-alone air purifiers.
- Ensuring adequate natural ventilation including the use of extractor fans
- Sealing leaks in bathrooms and roofs
- Clearing overflowing gutters and blocked under floor vents
- Removing indoor pot plants (which promote mold growth)
- Drying or removing wet carpets
- Treating rising damp as soon as it is detected
- Avoiding the use of organic mulches, and compost heaps.

Food



Foods are not common triggers for asthma symptoms. They rarely trigger asthma alone, but may trigger asthma as part of a generalized severe food allergy reaction involving other symptoms in the skin and gut. This reaction is known as anaphylaxis and it can be life-threatening. It is rare in adults and uncommon in children.

Food additives and chemicals also rarely trigger asthma. Most reactions to food additives and chemicals are not allergic reactions and cannot be tested by using skin prick tests or serum specific IgE tests.

If foods or food additives are suspected as triggers for your asthma, you may need to be referred to an allergy or immunology specialist for further detailed assessment. If foods are confirmed as triggers, your specialist may recommend you see a dietitian for advice.

Management and treatment options for people with asthma and allergy

Asthma action plan

A written asthma action plan is a set of instructions developed with your doctor (or other health professional like a nurse). It includes your asthma medicine, and how you may need to increase or decrease this depending on your asthma symptoms. A written asthma action plan will also help you to recognize worsening asthma symptoms, and will tell you what to do when this happens.

Your asthma action plan needs to be regularly reviewed by your doctor.

Asthma medicines for people with allergies

Medicines for people with both asthma and allergies are generally the same as for those who only have asthma i.e. reliever medicine and preventer medicine – both usually in puffers.

There are some preventer medicines that may be able to reduce inflammation caused by allergies as well as asthma. Ask your doctor if these medicines might be suitable for you.

Allergic rhinitis (hay fever)

If you have untreated allergic rhinitis (hay fever) it can be more difficult to control your asthma symptoms.

Nasal corticosteroid sprays are the most effective long-term medicine for allergic rhinitis. Like preventer medicines for asthma, they need to be used regularly over time. When used in this way, they can improve the control of your asthma and may reduce the chance of you having severe asthma attacks.

Non-sedating antihistamines are also used to treat allergic rhinitis symptoms and are generally safe for people with asthma.



Medicines that may cause problems

Some prescribed and over the counter medications such as aspirin, non-steroidal anti-inflammatory medicines and beta blockers can aggravate asthma.

It is important to inform your doctor and pharmacist of any medicines or natural/complementary therapy treatments you are taking.

Immunotherapy and asthma

Specific allergen immunotherapy (also known as desensitization) is a long-term treatment, usually at least 3 years, which changes the immune system's response to allergens. It involves taking small but regularly increased amounts of an allergen extract. It can be administered either sublingually, which involves taking a small amount of allergen under the tongue, or with a subcutaneous injection (injection into the fatty layer under the skin).

Immunotherapy should only be started by a doctor with immunotherapy training and be used together with:

- avoiding allergen triggers confirmed by your doctor
- using your medicines.

Immunotherapy has been shown to improve asthma control in some people with asthma who are allergic to house dust mite, cat and grass pollen allergens. It is also helpful for treating allergic rhinitis/conjunctivitis (hay fever).

Immunotherapy may be suitable for you if:

- Exposure to a particular allergen triggers your asthma symptoms
- Your allergy to a particular allergen is confirmed using allergy tests
- Further allergen exposure cannot be avoided or reduced.
- Your asthma is stable.

Immunotherapy cannot be given if you:-

- Are taking beta-blocker medicines
- Have had a previous severe allergic reaction (such as anaphylaxis) to immunotherapy
- Have certain immune disorders or aW malignancy (cancer).

Treatment is usually not started in pregnant women, but it can continue during pregnancy if you started using immunotherapy before you became pregnant. Your doctor will advise you on whether you should undertake immunotherapy.

Immunotherapy should only be initiated, supervised, and regularly monitored by a doctor with appropriate training, such as an allergy specialist (a referral is needed).

You should make sure you discuss the benefits and risks with your allergist/immunologist before you agree to have immunotherapy.

Can you anything to prevent asthma from developing?

There are certain things that increase the chance of a child developing asthma. For example if you have asthma and/or allergic diseases, your child can have a higher risk of developing asthma and allergic diseases.

Exposure (sensitization) to environmental allergens has also been associated with childhood asthma. House dust mite avoidance measures may reduce exposure, but it is unlikely that this will prevent wheezing or childhood asthma after your baby's first year of life.

Suggested prevention measures

Based on current evidence, the following measures might assist in preventing asthma from developing, however there is no guarantee:

- Breastfeed for the first 6 months of life – where possible, breastfeeding is best for your baby. If this isn't possible, a partially hydrolyzed formula can be used (ask your pharmacist)

- Avoid smoking during pregnancy – smoking is harmful to both you and your child during pregnancy. You should also avoid exposing your child to cigarette smoke at all stages of their life.

If your family already has pets it is not necessary to remove them, unless your child develops evidence of pet allergy (as assessed by your doctor or allergy specialist).

Other prevention measures

A clean, healthy environment is important, but tries not to over-sanitize the home with cleaning products. Remember that it is quite common for young children to develop colds which can have similar symptoms to wheeze. Current research suggests that having common childhood infections might actually protect children from developing asthma.

Other prevention measures that have been suggested are contact with farm animals early in life, and the use of probiotics, however both of these measures need further investigation.

There is no evidence that the use of dietary restriction as a prevention measure in the third trimester of pregnancy or while breastfeeding improves asthma.

Infant feeding

- Do not exclude foods which are potential allergy triggers (e.g. peanuts) from your diet while pregnant as there is no evidence that this will prevent allergies in your baby.
- Introduce solid foods from around 4–6 months while still breastfeeding.
- Give one new food at a time; if a food is tolerated, continue to give this as a part of a varied diet. If there is any reaction to any food, you should avoid that food until your child is reviewed by a medical practitioner with experience in food allergy.



