

# Asthma and Allergy

What you should know

1



## Contents

Asthma and allergy facts	1
What is allergy?	2
What is asthma?	2
What role does allergy play in your asthma?	3
Allergy tests	4
How can you avoid allergens?	6
Medication	14
Immunotherapy and asthma	15
Can you do anything to reduce the risk of your child developing asthma?	16
Further information	17
Acknowledgments	18

## Asthma and allergy facts

Asthma and allergic diseases have increased dramatically over recent years. Australia has the second highest prevalence of asthma in the world; 1 in 4 children, 1 in 7 teenagers and 1 in 10 adults. The reasons for this are unclear. However, we do know that:

- around 4 in 10 Australians have allergic disease
- more than 8 in 10 Australians with asthma have positive allergy test results.



## What is allergy?

**Allergy** occurs when a person's immune system reacts to substances in the environment that do not bother most people. These substances are known as **allergens** and are found in house dust mites, pets, pollen, moulds and foods.

**Atopy** is the genetic tendency to develop allergic diseases. People with atopy are said to be **atopic**.

When atopic people are exposed to allergens they can develop an immune reaction that leads to **allergic inflammation** (redness and swelling).

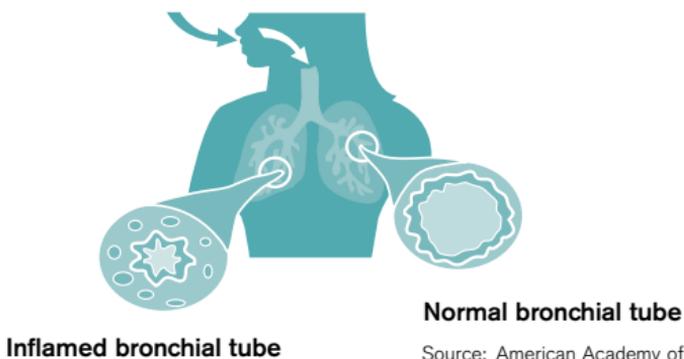
This can then cause symptoms in the:

- nose and/or eyes – **allergic rhinitis/conjunctivitis (hay fever)**
- skin – **eczema, hives**
- lungs – **asthma** (Figure 1).

## What is asthma?

Asthma is a reversible narrowing of the airways in the lungs.

**Figure 1 Inflammation in asthma**



Asthma symptoms include wheezing, coughing (particularly at night), chest tightness, difficulty in breathing and shortness of breath.

Asthma is a treatable health condition. Although at present there is no cure, with good management, people with asthma can lead normal, active lives.

## What role does allergy play in your asthma?

Most people with asthma are **atopic** (see page 2). If you are atopic, allergens may be important trigger factors that can worsen your asthma.

For example, you may wheeze when you:

- vacuum or dust, as this causes **house dust mite** allergens to become airborne
- visit a house where a **cat** lives
- are outdoors in late spring and early summer, when there are high levels of **pollen** in the air.

There is a close link between asthma and **allergic rhinitis/conjunctivitis (hay fever)**. If your hay fever is poorly controlled it can be more difficult to manage your asthma.

**Occupational asthma** is often caused by reactions to allergens in the workplace. Examples include:

- health care workers allergic to latex
- laboratory workers allergic to rats and mice
- bakers allergic to flour dust.

Unlike most other asthma triggers, exposure to some allergic triggers can be reduced or avoided. This can lead to improved control of your asthma and reduce your need for medication.

Your doctor can help to determine if allergy plays a role in your asthma by identifying and confirming allergens which trigger your asthma (see page 4).

It will then be possible for your doctor to:

- advise how to reduce or avoid exposure to your allergen triggers (see pages 6-13)
- prescribe appropriate medication (see page 14)
- determine if immunotherapy is suitable (see page 15).

## Allergy tests

It is important to identify and confirm allergens in your environment that may trigger your asthma. Avoiding or reducing your exposure to these identified allergic triggers is an important part of asthma management.

Your doctor will ask you a series of questions to identify possible allergic triggers and may order allergy tests – **Skin prick tests** or **blood (RAST) tests**. These tests detect antibodies to specific allergens. Test results cannot be used on their own and must be considered together with your medical history. You may be referred to an allergy specialist for further detailed assessment.

Once your allergic triggers are identified, avoiding or reducing exposure to these allergens may reduce your need for medications and improve control of your asthma symptoms.

Currently there are no tests that can diagnose intolerances to foods, food additives, chemicals and some medicines such as aspirin.

## Unproven allergy tests

There are several methods that claim to test for allergy. These include cytotoxic food testing, kinesiology, Vega testing, pulse testing, reflexology and hair analysis. These tests have not been scientifically validated and may lead you to take unnecessary, costly and (in the case of some changes in diet) dangerous avoidance strategies.

The use of these tests is not advised.

---

**Medicare rebates are only available for Skin prick tests or blood (RAST) tests.**

---

## Skin prick tests

Skin prick tests:

- are the most sensitive tests for confirming allergic triggers for asthma
- are safe and quick
- should only be performed by a person who has been trained in the procedure and in the interpretation of test results
- are usually performed on the forearm in adults and sometimes on the back in children. If you are allergic to the allergen being tested, a small lump similar to a mosquito bite will appear after 15-20 minutes. Certain medications such as antihistamines need to be stopped for 3-7 days before testing as these will interfere with the results.



## How can you avoid allergens?

The most common allergic triggers of asthma are house dust mite, pets, pollen and moulds.

Even though complete allergen avoidance will not cure asthma, reduced exposure to your allergen triggers may lead to improved control of your asthma and reduce your need for medication.

## House dust mite

House dust mites:

- are the most common allergen triggers for asthma in Australia
- are microscopic creatures that feed off human skin scales
- live in soft furnishings such as beds, bedding, carpets, upholstered furniture, soft toys and clothing
- thrive in temperate and humid climates such as coastal Australia
- are mostly found in domestic houses rather than public places
- are not usually in the air and only become airborne during and after dust-raising activities such as vacuuming and dusting.

## How can house dust mite levels be reduced?

If you are allergic to house dust mites you may be advised to take measures (see pages 7-10) to:

- kill house dust mites
- remove the allergen they produce
- reduce areas where they live and breed.

---

**The greatest exposure to house dust mites is from your bedding. Therefore the avoidance measures on the following pages focus on the bedroom.**

---

## House dust mite avoidance

### Bedding

**A combination of the following measures (1-4) has been shown to benefit asthma control.**

**1 Cover mattress, pillow and quilt with dust mite resistant covers. The covers must be washed every 2 months.** Some health funds may provide a rebate for the purchase of these items. If covers are not available, **wash blankets and non-encased washable doonas every 3 months**, using the method described below for sheets.

**2 Wash sheets and pillow cases weekly in water hotter than 55°C.** This will kill mites and wash away the allergen they produce. If you cannot wash in hot water, use a commercial product containing essential oils such as tea tree or eucalyptus oils, formulated to kill dust mites in cold water.

If washing normally, **hot tumble drying** of washed items for 10 minutes after they are dry will kill mites. **Dry cleaning** is not as effective as it will kill house dust mites but won't remove the allergen they produce.

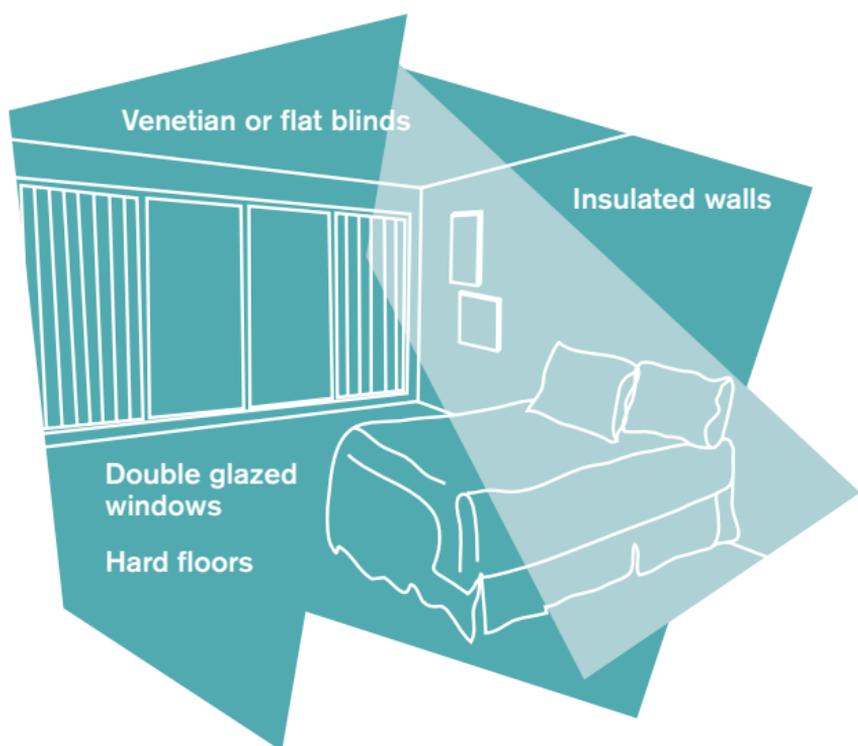
**3 Remove sheepskin or woollen underlays.**

**4 Remove all soft toys from the bed and bedroom.**

Replace them with wooden or plastic toys which can be washed. If a soft toy is allowed it should be washed weekly using the method described for sheets. It should be noted that freezing soft toys overnight kills mites but doesn't remove allergen.

## House dust mite avoidance

### Ideal bedroom



Well ventilated  
Clean environment

Allergen-resistant covers for the  
mattress, box springs and pillows

No sheepskin or woolen underlays

## House dust mite avoidance

### Other Measures

- **Damp dust or use electrostatic cloths** to clean hard surfaces (including hard floors) weekly.
- **Vacuum carpets weekly**  
Vacuuming increases the amount of house dust mite allergen in the air for up to 20 minutes. So, if possible, ask someone else to do the vacuuming and wait for 20 minutes before re-entering the room. High efficiency particulate air (HEPA) filter vacuum cleaners may remove more allergen than other vacuum cleaners. However, they still increase the amount of dust mite allergen in the air.
- **Consider replacing carpets with hard floors** such as wood, tiles, linoleum, concrete, where practical and affordable. Carpets can contain large amounts of house dust mite and animal allergens which cannot be completely removed by vacuuming. Although this will reduce allergen exposure, the benefits on asthma control are yet to be proven.
- **Reduce humidity** – have a dry and well ventilated house, adequate floor and wall insulation and avoid evaporative coolers.
- **Windows** – venetian blinds or flat blinds are easier to clean than heavy curtains. Washable curtains or external shutters are other options.
- **Consider house dust mite avoidance measures when building** a new home.

# House dust mite avoidance

## The most important measures

House dust mite avoidance measures should focus on the bedroom and require an ongoing commitment.

House dust mite levels can only be reduced by using a combination of:

- bedding covers
- regular washing
- reducing places where house dust mites can live and breed.

## Products that are not recommended

- **Sprays (acaracides)** – there is limited information on their effectiveness and safety.
- **Domestic dehumidifiers** have not been shown to benefit asthma control.
- **Air cleaning devices** – house dust mite allergen is only in the air for a short time during and after dust-raising activities such as vacuuming and dusting.

Figure 2 House dust mite (magnified)



## Pets

Exposure to pets (eg 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 there are no breeds that do not contain allergens, although 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.

---

**The most effective method of allergen avoidance for people with asthma who are allergic to cats or dogs is removal of the pets from the home.**

---

Less effective measures, which have not yet been adequately tested include:

- keeping pets out of bedrooms and living areas (although it may take weeks after pet removal before allergen levels are reduced)
- washing pets weekly
- vacuuming carpets weekly using a high efficiency particulate air (HEPA) vacuum cleaner
- using HEPA air filters.

## Pollen

Allergy to airborne pollen grains from certain grasses, weeds and trees:

- is common in people with asthma
- may worsen asthma symptoms during the pollen seasons (usually in spring and early summer or during the dry season in tropical regions)
- can cause outbreaks of asthma attacks after thunderstorms
- is usually caused by imported grasses, weeds and trees, which are wind pollinated
- is not usually caused by Australian native plants (although there are exceptions, such as Cypress Pine)
- is not usually caused by highly flowered plants as they produce less pollen (which is transported by bees) than wind pollinated plants.

The following measures may help reduce exposure to pollen, but are yet to be proven to improve asthma control.

- Remain indoors during pollen seasons, on windy days or after thunderstorms.
- Avoid activities known to cause allergen exposure – such as mowing grass.
- Shower after outdoor activities where there is high exposure to pollen.
- Use recirculated air in the car when pollen levels are high.

## Mould

Living in houses that are damp and have visible mould can increase the risk of wheezing in some people.

If you are allergic to mould, consider:

- removing visible mould by cleaning with bleach or other mould reduction cleaners
- ensuring adequate natural ventilation
- sealing leaks in bathrooms and roofs
- removing indoor pot plants (which promote mould growth)
- not working with garden compost or mulch.

The effects of these measures on asthma control are yet to be tested.

Although humidity promotes mould growth, dehumidifiers have been studied and have not been shown to be helpful in asthma control.

## Food

Foods are not common triggers for asthma symptoms. They rarely trigger asthma on its own, but may trigger asthma as part of a generalised 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 adverse reactions to food additives and chemicals are not allergic reactions and cannot be tested for by using skin prick tests or blood (RAST) allergy tests.

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

## Medication

### Asthma Action Plan

A written **Asthma Action Plan** developed in consultation with your doctor should include your asthma medication and how this may need to be increased or decreased, depending on your asthma symptoms. Your Asthma Action Plan needs to be regularly reviewed by your doctor.

### Allergic rhinitis

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 medication for allergic rhinitis (hay fever). Like preventer medication for asthma, they need to be used regularly over time. When used in this way, they can improve the control of your asthma and lessen the need for asthma medication.

**Non-sedating antihistamines** are also used to treat allergic rhinitis (hay fever) symptoms and are safe for people with asthma.

### Medications 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.
- 'Natural' treatments such as Echinacea and royal jelly can cause life-threatening allergic reactions (anaphylaxis) in some people with asthma.



---

**It is important to inform your doctor and pharmacist of any medications or 'natural' treatments you are taking.**

---

## Immunotherapy and asthma

Specific allergen **immunotherapy** (also known as **desensitisation**) is a long-term treatment which changes the immune system's response to allergens. It involves regular injections of gradually increasing amounts of allergen extracts. It is used in conjunction with avoidance of known allergen triggers and use of medication.

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 proven to be effective in treating allergic rhinitis/conjunctivitis (hay fever).

Immunotherapy may be suitable for you if:

- exposure to a particular allergen causes your 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 medication
- have had a previous severe allergic reaction (such as anaphylaxis) to immunotherapy
- have certain immune disorders.

Your doctor will advise you. Immunotherapy should only be initiated and supervised by a doctor with appropriate training, such as an allergy specialist (a referral is required). Informed consent must be given. If you are receiving immunotherapy, your asthma must be regularly monitored by your doctor.

---

**You should make sure you understand the benefits and risks before you agree to have immunotherapy.**

---

## Can you do anything to reduce the risk of your child developing asthma?

If you have asthma and/or allergic diseases, your child can have a higher risk of developing asthma and allergic diseases.

Effective treatments for controlling asthma and allergy symptoms are available. However, there are no cures. So prevention would be an ideal approach.

Based on current evidence, the following suggestions can be made.

- Breastfeed exclusively for the first 6 months of life. When possible, breastfeeding is always best for your baby. If this isn't possible, use a partially hydrolysed formula (ask your pharmacist) in the first 6 months of life.
- Avoid smoking during pregnancy and avoid exposing your baby to cigarette smoke.

Even if you carry out these suggestions you may not be able to prevent your child from developing asthma and/or allergic diseases.

House dust mite avoidance measures in your baby's bedroom (see page 7) and play areas may be considered. However, it is unlikely this will prevent wheezing or childhood asthma after your baby's first year of life.

No suggestions can be made regarding exposure to pets or farm animals, dietary restrictions in pregnancy or lactation, or probiotics for preventing the development of asthma at this time, as study findings are inconclusive.

## Further information

Talk to your doctor or pharmacist or contact the following organisations:

**Australasian Society of Clinical Immunology and Allergy** [www.allergy.org.au](http://www.allergy.org.au)

### **Asthma Foundations of Australia**

Contact your local Asthma Foundation on **1800 645 130** or visit their websites:

[www.asthmaaustralia.org.au](http://www.asthmaaustralia.org.au) [www.asthma.org.au](http://www.asthma.org.au)  
[www.asthmansw.org.au](http://www.asthmansw.org.au) [www.asthmasa.org.au](http://www.asthmasa.org.au)  
[www.asthmawa.org.au](http://www.asthmawa.org.au) [www.asthmatas.org.au](http://www.asthmatas.org.au)  
[www.asthmant.org.au](http://www.asthmant.org.au) [www.asthmaqld.org.au](http://www.asthmaqld.org.au)

**National Asthma Council** [www.NationalAsthma.org.au](http://www.NationalAsthma.org.au)

**Asthma** [www.health.gov.au/pq/asthma](http://www.health.gov.au/pq/asthma)

**HealthInsite** [www.healthinsite.gov.au](http://www.healthinsite.gov.au)

© Australian Government Department of Health and Ageing 2004

#### **Disclaimer**

It is important to note that information contained in this brochure is not intended to replace professional medical advice. Any questions regarding a medical diagnosis or treatment should be directed to a medical practitioner.

## Acknowledgments

This brochure is based on published evidence and editing by medical specialists who are members of the Australasian Society of Clinical Immunology and Allergy (ASCIA). Participants and references to this brochure are included on the ASCIA website [www.allergy.org.au](http://www.allergy.org.au)

ASCIA is the peak professional body for clinical immunologists and allergists in Australia.

Representatives from the National Asthma Council, Asthma Foundations of Australia and the Australian Government Department of Health and Ageing were also involved in editing this brochure.

This series on Asthma Topics for Consumers comprises eight separate titles:

**1 Asthma and Allergy**

2 Asthma and Lung Function Tests

3 Asthma and Pain Relievers

4 Asthma and Air Pollution

5 Asthma and Complementary Therapies

6 Asthma and Infant Bedding

7 Asthma and Diet in Early Childhood

8 Asthma and Wheezing in the First Years of Life

To access these documents log on to:

[www.NationalAsthma.org.au](http://www.NationalAsthma.org.au) or contact

your local Asthma Foundation on **1800 645 130**.



**Australian Government**  
**Department of Health and Ageing**

**ascia**

australasian society of clinical immunology and allergy inc.