

## ALLERGY

Allergic disorders are on the increase both in this country and across Europe, affecting between 10 and 30% of the population. Allergies come in many forms, ranging from eczema, asthma, hay fever, food allergies and allergies to medicines, through to severe reactions to insect stings and peanuts

### What is an allergy?

The human body has a complex immune system which helps it to fight infection. When infection attacks the body the immune system is triggered to produce antibodies. These antibodies have an individual 'key' to fit each individual infection. After exposure to a virus or bacteria, the immune system remembers this 'key'. This protects the body from repeated infection from the same bacterium or virus.

Some people react in this way to non-infectious substances. The immune system can overreact to a substance that would normally be considered harmless, and this is known as an allergic response. Exposure to a potential allergen can provoke an abnormal 'allergic' response. This may occur after first contact or often after repeated exposure. However, once the immune system has responded in this way, it remembers the allergic reaction and subsequently triggers this reaction.

### Who gets allergies?

Some people are particularly sensitive to this type of reaction and their condition is known as atopy. They have an increased risk of disorders such as eczema, asthma and hay fever. These disorders can occur together or singly and at different stages of a person's life. Atopy runs in families, though not always in a direct parent to child line. A child who has one atopic parent has a 30% chance of developing an allergy. In a child whose parents are both atopic, there is a 60% chance of that child developing an allergy.

As well as an atopic person's genetic make up, their environment can also have an affect on whether or not they develop an allergy. There is some research to suggest that atopic babies born in the spring have a greater chance of developing hay fever. Also, Swedish people are more likely to be allergic to salmon (they eat a lot of it), and Americans are more likely to have an allergic reaction to peanuts, due to the large amounts of peanut butter eaten in the United States. Exposure to cigarette smoke in the early years of life may also make allergies more likely.

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Allergic reactions can also affect those who have no sign of an atopic disorder, including those who have severe reactions to peanuts and bee stings. Some people also develop allergies to chemical substances that they come into contact with in their environment, such as nickel, externally applied medicaments and ingredients within cosmetic products. This type of allergy is called allergic contact dermatitis and is commonly not associated with atopy (see NES booklet on this topic). Natural products such as latex, lanolin and chemicals derived from plants can also cause local skin reactions, and all forms of localised allergic contact dermatitis can build up and spread to other parts of the body.

### **What can cause an allergic response?**

An allergic response can be triggered either by insects such as bees and wasps that can inject their poison into the body, by foods such as peanuts, by medicines, by substances that are inhaled or by substances that actually come into contact with the skin. Allergens such as bee stings, peanuts and latex can cause a very severe reaction in a small minority of people. This condition is known as anaphylaxis.

In a person who is atopic the most common allergens are dusts and foods. Dusts are inhaled into the lungs, foods are eaten and their proteins dissolve into the mucous membranes of the gut, lungs, nose or mouth. Some common allergens which may possibly act as a trigger for atopic eczema are listed below, although it is often impossible to determine which allergens if any, cause the disorder..

#### **Dusts**

House dust mite droppings  
Animal dander (dead skin)  
Pollen  
Moulds

#### **Foods**

Dairy Products  
Eggs  
Fish and shellfish  
Soya, peanut and tree nuts

### **How do I find out if I have an allergy?**

A detailed history is very important, but the time for this may ultimately only be available in the specialist clinic. This may include any family history of allergy, the symptoms of the condition, how long the reaction lasted and in some cases what you do for a living. One of the best ways to determine whether you are experiencing an allergic reaction, and what may be causing it is to keep an accurate diary. This might include what you have eaten, where you have been, what the weather has been like and any specific changes in your environment or circumstances. You would also need to note whether the skin reaction was worse or better, whether it had spread and where the original reaction began.

This does not apply to allergic reactions that are severe (anaphylaxis), and involve any swelling of the face or throat and any difficulty in breathing, as these types of reaction require immediate medical attention.

If a detailed history does not highlight the allergen then further testing might be required, although such tests are not always conclusive (as is often the case in atopic eczema). Your doctor can arrange certain types of tests, or could refer you for appropriate testing at your local hospital outpatient department. Most of these tests are also available privately, through a dermatologist or private clinic.

### **Patch Testing**

This type of testing is used for people who have skin reactions to chemical substances that come into contact with their skin, such as metals, cosmetics and toiletries. The test is looking for a delayed reaction to an allergen. The allergen, mixed with either paraffin or water, is placed on the skin, covered and then left for 48-72 hours. Several different allergens can be tested at once and the solutions are applied in small patches attached to adhesive strips, usually on a clear area of skin on the person's back. Some of these strips can be related to occupation. There are, for example, hairdressers', bakers' and printers' strips. Once the strips are removed the results are analysed. Some testing centres look at the skin again after another 48 hours for any further reaction.

### **The Skin Prick Test**

This test, along with the RAST test (see below), is used to discover whether a person is allergic to any of the airborne or food related allergens. It detects the amount of 'IgE' antibodies produced in response to certain allergens. A small amount of an allergen in solution is placed on the surface of the skin, and then the skin is pricked with a needle through the drop. This is generally done on the forearm or the back. After about 10-20 minutes the skin is then examined. If a raised red area appears then this may indicate a positive result depending on its size. Positive results mean that a person has become sensitized to that allergen, and if combined with a history of reacting to that allergen this indicates allergy. The skin reaction following the skin prick test should only last for a couple of hours and then it will go down. Testing should be performed with a doctor present in case of a severe reaction occurs. Most people can be tested in this way, though the results can sometimes be more difficult to see in babies and children under the age of three, as it takes time for an antibody response to build up. It is important that antihistamines are not being taken at the time of the test as false negative results may be obtained.

### **The RAST Test**

This stands for the Radioallergosorbent test! This is a blood test that measures the amount of 'IgE' antibody produced against specific allergens. The reactions are graded from 1 to 6, with 6 being the most positive. If there is a high total IgE level then false negative results are more likely. This test is not affected by taking oral antihistamines.

The different types of allergy testing can be very useful tools. However, none of the tests are 100% accurate and at times can give false results, particularly in young

children who may have positive results but become tolerant, for example to a food substance. An oral food challenge may be needed, carried out in hospital, to determine whether or not it is safe to eat a particular food when the tests are indeterminate. A person's skin type, the place where the tests are performed on the body, whether anti-histamines have been taken previously and the quality of the tests themselves can all affect the results.

There are other types of testing available including analysis of hair samples and Vega testing. There is no evidence to suggest at the moment that these types of test are accurate at all and they should therefore be avoided.

### **Can allergies be prevented?**

There is no conclusive evidence yet that allergies can be prevented by changes to the mother's or baby's diet. The current recommendation is for mothers to breast feed their children and this also applies to children at risk of developing allergies or eczema. If the mother has allergies herself or has another affected child, or is unable to breast feed her baby then hydrolysed formula milks are preferred. Your doctor or health visitor will be able to advise you.

For those babies who are at very high risk of developing eczema, reducing or removing dairy products and eggs from the diet may be considered. This should only be undertaken after talking with your doctor and needs supervision including the advice of a dietician to ensure that the diet is adequate.

If a child is at great risk of developing allergies, then it is especially important not to wean (under six months of age) but all babies should have solids introduced into their diet after six months of age. Weaning should be done with care. Common allergens such as eggs are not recommended under one year of age and nuts should not be given to children less than 3 years of age. The best way to do this is by talking to a dietician.

Avoiding cigarette smoke and pets and reducing the numbers of the house dust mite in the early years of life is thought to reduce the risk of atopic eczema, but evidence is not absolutely conclusive

### **How can I treat my allergy?**

Wherever possible, avoiding the allergen is usually the first step, and for many the only treatment necessary. In principle that sounds fairly easy, however in practice it can be more difficult to remove an allergen from the environment altogether. For example, a pet may be removed from the house (a sometimes difficult process in itself!) but the pet dander, or skin, which causes the allergic reaction, may still be present in the carpets, bedding and curtains throughout the house for a long time.

If the allergen is something in the diet then eliminating it can sometimes cause more problems than the allergy itself. Advice from a dietician should always be sought before changing a diet, particularly a child's, and following any strict diet needs a lot of careful thought. Exclusion diets can be difficult to stick to for children attending schools. Any measures aimed at avoiding allergens may also need to be put into place at work and in schools, as well as in the home. Many people have allergy problems with the house dust mite and it is sensible to use a thorough and regular cleaning routine in the home to cut down their numbers, although complete elimination of house dust mite from the domestic environment can be very difficult.

If an allergy is mild then treatment of the symptoms is usually enough. For example the use of a good skin care routine in the treatment of eczema is often enough to keep the condition under control. New types of antihistamines, that do not cause drowsiness, can be useful in hay fever and urticaria (a nettle rash type of allergic skin reaction). The older more sedating forms of antihistamine (which are not habit-forming) are sometimes used in a different way to help children and adults with eczema to sleep.

In more severe cases of allergy a steroid of some type may be needed. This can either be in the form of an application to the skin, a tablet, or an inhalation in the case of asthmatic medication. Steroids will dampen down the effects of the allergen, providing relief from a range of symptoms. In cases where a person has an anaphylactic reaction to a substance then they will require a special drug called adrenaline, given as an EpiPen injection, to carry with them at all times along with education on how and when to use it.

A treatment called specific desensitisation is used in some European countries but is not widely used in the UK. This involves injecting the allergen in very small amounts on a regular basis, into the person with the allergy. The amount given is gradually increased until the person can tolerate the allergen. This type of treatment does have risks in the form of severe reactions to the injections themselves, and for this reason its use has been restricted in this country. If you are interested in this type of treatment then discuss it with your doctor.

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### **Disclaimer**

This information provided only as a general guide. Individual circumstances differ and the National Eczema Society does not prescribe, give medical advice or endorse products or treatments. We hope you find the information useful, but it does not replace, and should not replace, the essential guidance, which can be given by your doctor.

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