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Fact sheet: Specific immunotherapy for allergies that cause hay fever and asthma



Allergies can make the springtime and summer a misery. At the time of year when everything is green and blooming, up to 3 or 4 out of every 10 adults and children in industrialised countries have hay fever. They sneeze a lot, their nose runs or gets blocked, their eyes itch and water. These hay fever symptoms, also called "seasonal allergic rhinitis", are usually caused by the large amount of pollen in the air. People with both allergies and asthma have more asthma attacks than usual during this time.

Some people have allergic rhinitis all year round. This so-called "perennial allergic rhinitis" can be caused by allergies to animal dander or house dust mites. The symptoms can be relieved by taking medication or trying to avoid the things ("allergens") that you are allergic to. If this does not help enough, people try specific immunotherapy or "desensitisation" treatment. The research on the possible benefits and harms of this treatment might help you decide whether you want to try it.

What is specific immunotherapy?

The aim of immunotherapy is to reduce allergy symptoms in the medium to long-term. It is not given in a single treatment and it does not work immediately after the first injection. The names "desensitisation" and "hyposensitisation" describe what this therapy aims to do. If a person is allergic to something, then their body is oversensitive or hypersensitive to an allergen - the substance that causes the reaction in that person. The person's body produces antibodies against the allergen to defend itself, even though the allergen is usually a harmless substance. These antibodies are part of the chain reaction that causes the allergy symptoms. Immunotherapy involves giving a person extracts of the allergen to try to teach their body to react differently. It is a bit like trying to immunise the person against their own allergy. In fact, the allergen extracts used in immunotherapy are sometimes called "allergy vaccines".

Specific immunotherapy (SIT) cannot be used for every allergy. It is called "specific" because the extract has to be tailored to the individual person's allergy or allergies. There is not yet a SIT extract for everything that causes allergies. There are extracts for many of the common airborne allergens and for some poisonous substances (like the poison in bee stings), but not generally for food allergies. You can see a list of the extracts that have been approved by the European Medicines Agency here (URL: <http://www.emea.europa.eu/pdfs/human/bwp/30483107en.html>)

What does the treatment involve?

In SIT, the person is repeatedly given injections of a very small amount of "their" allergen or allergens. First of all, a test is done to confirm that the person has a specific allergy for which an extract is available. In order to try to help the body get used to the allergen, the amount of allergen used is very small at first. Later in the treatment the dose can be increased from session to session. If the person's body over-reacts, the amount can be reduced again. The dose is supposed to be as high as possible without causing too much of an allergic reaction. So both the person getting the treatment and the doctor need to watch for reactions very carefully.

Getting "allergy shots" means repeated visits to the doctor. It usually takes at least two to three years to get the most benefit, but it is also not uncommon for treatment to last five years. At first, the allergen is injected every week or two. Later on, it is done less often, usually once a month. Usually only one allergen extract is used at a time. Several extracts can also be mixed and injected together, but there is very little research about this.

Injections are the most established way to have immunotherapy. This is called "subcutaneous" therapy because it is injected just under the skin (subcutaneously). Oral therapy with ordinary tablets has not been shown to be very effective. Another option which is becoming increasingly popular in many European countries is "sublingual immunotherapy" (SLIT). This is often called "sublingual and swallow immunotherapy", because it is usually held under the tongue (sublingual) for a while and then swallowed. People also call these "allergy drops". As well as drops, SLIT can come in the form of sublingual tablets or a spray. The body can react very differently to one substance, depending on whether it is injected or absorbed.

Do "allergy shots" work?

Trials have shown that most of the people with hay fever (seasonal allergic rhinitis) who have SIT have fewer symptoms and need to use less allergy medications. In some people it does not work all that well, though, and the symptoms may get worse again after the treatment ends. Not enough is known about the long-term effects of SIT.

The people in the trials mentioned above were allergic to tree, grass or weed pollen. It also seemed to work in

children, but there has not been as much research on this. You can read more about the trials of SIT injections for seasonal allergic rhinitis [here](http://www.informedhealthonline.org/index.379.en.html) (URL: <http://www.informedhealthonline.org/index.379.en.html>).

More trials have recently been done on specific immunotherapy for people with allergic asthma, who are often allergic to dust mites and pollen. Although it seems likely that immunotherapy can help people with allergic asthma, the injections may cause more adverse effects. When the results of these recent trials have been analysed further, we will report on the findings.

What about the adverse effects?

Adverse effects are very common with specific immunotherapy: this is to be expected when a person is given something to which their body is allergic. In the trials on SIT for hay fever, most people had reactions such as a mild rash where they were injected - about 6 out of every 10 people injected (around 60%). But only about 1 out of every 10 of those people needed treatment to relieve this reaction. However, about 2 out of every 10 people (20%) had stronger allergic reactions or asthma-like symptoms, often needing treatment.

The biggest concern, though, is that SIT will cause an overwhelming, difficult-to-control allergic reaction called "anaphylactic shock" or "anaphylaxis". If someone has this kind of major reaction, it is an emergency that needs immediate medical treatment. This can involve an injection of a drug called adrenaline to quickly counteract the body's reaction. It can also mean that resuscitation could be needed if the body goes into shock. This kind of really serious reaction is more likely if a person does not get good immediate medical help when the first signs of the reaction appear. It is not common. In the trials on SIT for hay fever, fewer than one out of every 100 people had a potentially dangerous reaction. It is because of this risk, though, that every person who has these injections needs to stay in the doctor's office for at least 30 minutes after the injection. Your doctor should also explain the symptoms of this reaction to you, so that you can tell if it might be happening when you are not with the doctor.

The risk of these reactions is much higher for some people. Your doctor should advise you if you are at very high risk. This could be the case if you have severe asthma that is not well controlled and is unstable. Certain heart conditions could increase the risk too. People who are taking beta-blockers for cardiovascular (heart and blood vessel)

conditions are usually not able to have SIT because beta-blockers can make the reactions difficult to treat. If you have had an allergic reaction to an injection in the past, tell your doctor about it before starting SIT.

Before each scheduled treatment session, your doctor will check your general health to see if there are any reasons for delaying that injection. At the moment research is being done to see whether taking particular medications, such as antihistamines, before the treatment could reduce the adverse effects. We will write about this research when clear results become available. Sublingual therapy may turn out to be the best option for reducing the risks of immunotherapy.

What are the advantages and disadvantages of the sublingual form of immunotherapy?

Sublingual immunotherapy (SLIT) aims to provide the benefits of immunotherapy, with a lower risk of adverse reactions than injections. The sublingual form of the treatment needs to be taken more often. Because there is no injection, adverse effects are not as common. This could mean that you do not have to go to the doctor as often.

On the other hand, less medical supervision and less planning for each treatment could mean that the therapy may not be carried out exactly the way it needs to be carried out. It is also thought that it might not be as effective as the injections.

There have recently been many trials on sublingual immunotherapy, including trials in children. As the body of research results on SLIT has grown, it has become clear that adverse effects are less common and that it can have some benefits. Again, when researchers have analysed the combined results of these newer trials so that a better picture is available, we will report on their findings.

What else can help with allergies?

Immunotherapy could help many people with allergies. It is not suitable for everyone, though, and some of the people who experience improvement will still have some allergy symptoms. There are many medications that can help, such as a variety of antihistamines and steroids, as well as asthma medications. Asthma medication can also help reduce asthma attacks caused by allergies to, for example, house dust mites.

There is a lot of ongoing research and development of medications in this area, so it can be worthwhile checking what researchers have learned from time to time. If you would like to read our updates on research about allergies, you can sign up for our free newsletter here (URL: <http://www.gesundheitsinformation.de/index.258.69.en.html>) . You can read our current information on allergies here (URL: <http://www.gesundheitsinformation.de/allergies.474.56.en.html>) , including information comparing the latest antihistamines and information on preventing allergies in children.

Glossary

allergy

An allergy is the body's overly sensitive reaction to a foreign substance. The body produces antibodies just as it would if the substance were a germ, although it is not dangerous to the body. The symptoms of the allergy partly depend on the substance causing it, the allergen. People with allergies often have symptoms like running nose, watery eyes, itching, rashes, stomach and bowel problems or asthma. Typical allergens are pollen, animal hair, proteins in certain food or house dust mite excrement.

asthma

Asthma (asthma bronchiale) is a permanent (chronic) disease with symptoms like coughing and breathlessness often occurring in acute attacks. In asthma, the airways are overly sensitive. The development of asthma is often associated with an overreaction to foreign substances or physical stimuli, frequently in connection with an allergy.

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You can find a list of the evidence and other scientific literature on which this information is based at **www.informedhealthonline.org**

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