

# Patients Guide to Desensitisation - (Immunotherapy Treatment)

## Introduction

It has been diagnosed that you are suffering from allergy and that a course of desensitisation therapy will be of benefit to you. The reason is that this will treat the cause of your condition rather than just relieve the symptoms. This leaflet is designed to explain some of the background to this type of treatment.

Before answering some of your questions about desensitisation let's start at the very beginning and explain a little about allergy.

## What is Allergy?

To have an allergy is to have an increased sensitivity to things, which to the average non-allergic person are harmless.

Take, for example, grass pollen. Every summer grass releases large amounts of pollen into the air we breathe. If you suffer from an allergy to grass pollen (hay fever), the more pollen there is in the air the worse your hay fever will be. But people sitting next to you who are not allergic will wonder why you are sneezing and rubbing your eyes. They are breathing the same amount of grass pollen as you but it has no effect. The reason is, of course, that you are more sensitive than they are to grass pollen.

## Does this mean that I am likely to become sensitive to lots of things?

Fortunately in most cases the answer is no.

The medical name for a substance which causes an allergic reaction is Allergen.

There are hundreds of different allergens and they range from grass and tree pollens through to spores of mould, animal dander and even a microscopic little creature which lives in house dust, called the house dust mite. Each of these different types of allergen has a different shape from the next. If you imagine an allergen to be like a key, in the same way as a key will fit only the lock for which it is designed, your body in turn is sensitive only to a certain shape of allergen.

## What Causes the Allergic Reaction?

Allergens are present in the air we breathe and, as we have seen, to non-allergic people cause no ill effects whatsoever. However, in the case of an allergic individual the body regards an allergen as an invader and tries to set up a defense mechanism.

This results in chemicals being released into your bloodstream that make your nose run, chest wheeze and so on.

## How does the treatment work?

Allergen immunotherapy works like a vaccination. In fact, the new term for desensitization & Immunotherapy is Allergy vaccination. Through your body's exposure to small, injected amounts of a particular allergen, in gradually increasing doses, your body builds up immunity to the allergen(s) to which you are allergic. This means that when you encounter these allergens in the future, you will have a reduced or very minor allergic response and fewer symptoms.

At the beginning of the allergen immunotherapy, the first injection consists of a small amount of the least concentrated vaccine. Each week, the patient receives a slightly more concentrated allergen vaccine injection. The rate at which the concentration is increased depends on the patient's degree of sensitivity. Usually a patient will reach the top (maintenance) dose about four to six months after injections are begun. The maintenance dose is then given every one to two weeks, and later, the interval is extended to every three or four weeks.

Allergen immunotherapy works by altering the abnormal immune responses that cause allergy. Protective antibodies, similar to those made in response to other vaccines, play a role in the beneficial results of allergen immunotherapy.

## Benefits

Allergen immunotherapy treatment is considered when allergy symptoms are moderate to severe, occurs throughout most of the year, do not respond adequately to medications, and are triggered by an allergen not easily avoided, such as pollens or house dust mite allergens.

Studies showing the effectiveness of immunotherapy show about 8 out of 10 allergy patients benefit from immunotherapy.

Dr Michael Abramson, MD of Monash University recently did a meta-analysis of 62 randomised-controlled trials on the effectiveness of immunotherapy. This meta-analysis included over 900 citations of studies conducted from 1954 to 1998, involving all the common aeroallergens (such as house dust mites, pollens, animal dander and mould).

His conclusion was that "immunotherapy significantly reduce patients' asthma symptoms, airway hyperactivity, and medication requirements".

Harold Nelson, MD of the National Jewish Medical Research Centre, Denver also performed a MEDLINE review of prospective, randomised, double-blind, placebo-controlled allergen immunotherapy studies from 1966 to 1998. In 24 asthma studies immunotherapy was effective in 71% of patients, improving symptoms and lung function, reducing the need for medication, and protecting against bronchial challenge. It was ineffective in 17% of subjects and equivocal in 12%.

### **Long-term effects of Immunotherapy (Allergy vaccination)**

The long-term clinical effects after termination of two to three years of specific allergy vaccination (immunotherapy) have been shown for grass pollen, tree pollen as well as animal hair & dander. In the follow-up study with patients allergic to grass pollen, it was shown that patients suffering from rhino conjunctivitis with or without mild-to-moderate seasonal asthma had persistently and significantly fewer symptoms during seasonal exposure 5 years after termination of immunotherapy when standardized allergen vaccine was used. A similar study with patients allergic to birch pollen showed an effect on asthma and hay fever symptoms as well as nasal sensitivity after 2 years of specific allergy vaccination. The study confirms that the clinical effects persist for a period of at least 6 years after termination of treatment. Another interesting result from this study was that none of the patients who initially suffered only from hay fever developed asthma during the study period.

Patients allergic to cats, who have mild to moderate asthma, have been shown not only to reduce their reactivity to cat allergen but also to reduce non-specific hyperreactivity and hypersensitivity estimated using a histamine challenge test. In the follow-up study 5 years after termination of specific allergy vaccination, the effect was persistent with regard to exposure to cats as well as non-specific hyperreactivity.

### **Potential Side Effects**

As with all treatments, some patients may experience adverse reactions, i.e., the injection can sometimes cause an allergic reaction. After receiving each injection, all patients are required to wait for 20-30 minutes, so the staff can monitor you. During treatment some patients develop swelling at the site of the injection. When these are large, they are called "local reactions". Oral antihistamines, ice packs and adjustment of the dose usually resolve these reactions.

Rarely, a patient may have a more serious allergic reaction, resulting in asthma symptoms or [anaphylaxis](#). Asthma symptoms include cough, wheezing and shortness of breath. Symptoms of anaphylaxis include sneezing, watery nasal discharge, itchy eyes, swelling in the throat, wheezing or tightness in the chest, nausea, dizziness or other symptoms. If an anaphylactic reaction occurs, it will usually develop within 30 minutes of the injection. This is the main reason why you are required to wait for 20 minutes after your injection.

## FREQUENTLY ASKED QUESTIONS ON IMMUNOTHERAPY

### **Why are initial injections given at weekly intervals?**

When the extract is injected a small amount of the allergen is released slowly over a period of days. In this way your body is receiving a virtually constant supply of the allergen.

Receiving injections at weekly intervals mean there is always an overlap between the previous injection and the new one being given. The body rapidly becomes accustomed to receiving doses of the allergen on a regular basis and as tolerance builds up, so the dose of the allergen can be gradually increased.

Ideally, therefore, you should aim to have your injections on the same day each week.

### **What happens if I miss a week?**

A gap of up to two weeks instead of one week will still allow the injection dose to be increased on that particular visit, but there may be an increased chance of your getting a minor side effect. However, a gap of more than two weeks will mean your doctor will have to repeat the previous injection because the body will have lost some of its tolerance over such an extended period.

### **Will I be able to go home immediately after each injection?**

Even though you may have experienced no ill effects after your first, second or even third injection we will still ask you to sit in the waiting room for 20-30 minutes. The reason for this is that should you suffer any of the side-effects described earlier, we will want to have a look at it so that we can decide whether to give you an antihistamine before your next injection and whether or not to increase the dose of your next injection.

### **Do I have to stop taking other treatments whilst having a course of desensitising injections?**

You should not stop any of your previously prescribed treatments without contacting your doctor or us.

There are very few treatments that would interfere with your course of desensitising treatment, and particularly if you are taking medication for another condition it might actually be harmful for you to stop taking other treatment.

### **What happens if I become pregnant when I'm on the course of treatment?**

You should always inform us if you have reason to believe that you may be pregnant and whilst the treatment will in no way harm the baby we need to know so as to make a decision whether to continue or wait until after you have had your baby. There is some evidence that it might be more advantageous to the baby for the mother to be desensitised.

### **How will desensitisation help my allergy?**

The treatment literally reduces your sensitivity to a particular allergen. Desensitizing extracts contain small quantities of the substances to which you are allergic. The body defends itself by producing particular antibodies. If enough are produced in the body, the next time you come in contact with the allergen they will help to protect you.

### **Will desensitisation cure my allergy?**

No treatment can ever guarantee complete success, but in clinical trials 8 out of 10 patients experienced complete relief of their symptoms. All the studies done on desensitization (immunotherapy) for venom allergy show them to be more than 90% effective.

The key to success lies in correctly identifying the specific allergen(s) involved and thereafter persevering with the course of treatment for three successive years.

### **What is involved in a course of treatment?**

Treatment consists of injections containing gradually increasing doses of allergen given once a week for a minimum of 9 weeks, but usually 12 weeks. The injections are usually given in the upper part of the arm and are virtually painless.

For seasonal allergies (e.g. hay fever) we try and start the course outside of the season. In the case of perennial allergies (e.g. house dust mite) it will first be necessary to reduce your contact with the allergen (usually by avoidance measures), and then the course of treatment can start at any time. In both types of allergy the course consists of gradually increasing doses of the allergen given once a week for 9 to 12 weeks.

### **What are maintenance injections?**

Basically, maintenance injections involve repeating the top dose of your initial treatment at monthly to six weekly intervals.

### **Why do I need maintenance?**

After you have had your 12 injections your body will have built up sufficient antibodies to begin to have an effect on controlling your symptoms, but the antibodies that have been so carefully built up can decline over a period of time and to prevent this from happening you should have regular maintenance injections for a period of up to three years. In this way high levels of antibodies are built up and a long lasting immunity achieved.