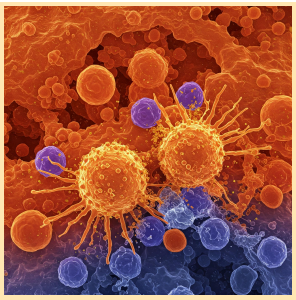
ALLERGY RHINO

White Paper

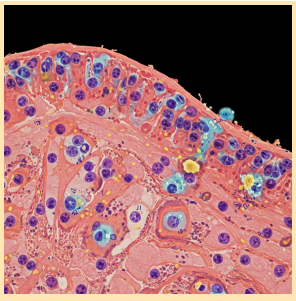
Allergy Immunotherapy: A Century of Progress and Hope

Allergy Immunotherapy at a Glance



What it is:

A treatment (also called *desensitisation*) that trains your immune system not to overreact to allergens. It works by exposing you to tiny, increasing amounts of the allergen over time.
Think of it like an "allergy vaccine" – building tolerance so the allergen causes fewer symptoms.



Why it's unique:

It's the only therapy that addresses the *cause* of allergic reactions, not just the symptoms. Successful immunotherapy can provide long-lasting relief even after treatment stops (often 10+ years of benefit).

Forms:

Traditionally given as regular **allergy injections** (under the skin), and more recently as **sublingual tablets** or drops (held under the tongue). Both methods aim for the same result – a life with less sneezing, wheezing, and allergic turmoil!

Timeline: Major Milestones in Allergy Immunotherapy

1873 – Pollen identified: British doctor Charles Blackley discovers that pollen is the trigger for hay fever, laying the groundwork for targeted allergy treatments.

1911 – First "Allergy Shots" (UK): London physicians Leonard Noon and John Freeman pioneer allergen immunotherapy. They inject hay fever patients with grass pollen extract, in gradually increasing doses, to *desensitise* them – a revolutionary idea

published in *The Lancet*.
By 1930, these pollen injections had become a mainstream hay fever treatment.

1950s – Venom Immunotherapy: Allergy doctors expand immunotherapy beyond pollen. In the 1950s, American allergist Mary Hewitt Loveless developed the first effective bee and wasp **venom immunotherapy**, protecting those at risk of deadly sting reactions. This breakthrough meant insect allergies could be tamed by inducing immunity to the venom.

1986 – A Safer Alternative (UK): The first successful trial of **sublingual immunotherapy (SLIT)** is conducted in the UK, using drops under the tongue instead of injections. This showed a viable new route that was effective for allergic rhinitis and came with fewer severe reactions – opening the door to allergy tablets.

1986 – Safety Reforms in Britain: UK health authorities respond to reports of rare reactions to allergy shots. Before 1986, allergy injections were given with fewer safety measures in place. Since then, strict guidelines have been introduced to make the treatment much safer. Injections are now only given under the care of specialists, with proper monitoring and emergency support available if needed. These changes made allergy shots much safer. In 1986 guidelines were tightened: immunotherapy would be given only under specialist supervision with full resuscitation facilities and a post-injection observation period. These changes made allergy shots much safer and led to increased confidence in treatment.

1998 – Global Endorsement: The World Health Organization (WHO) releases a landmark position paper affirming that allergen immunotherapy is an effective treatment for allergic asthma and rhinitis, while also highlighting the importance of safety measures. This global recognition underscored immunotherapy's value in allergy care.

2006 – First Allergy Tablet (EU): Immunotherapy goes truly mainstream with a pill. The first sublingual immunotherapy tablet, a daily dissolvable pill for grass pollen allergy (trade name *Grazax*), is approved in Europe. This made immunotherapy more accessible – no needles needed – and by the late 2000s, clinics in the UK and EU began offering tablets for seasonal hay fever relief.

2014 – Tablets Approved in the US: The U.S. FDA approves once-daily allergen tablets (for grass pollen, ragweed pollen, etc.), marking the introduction of sublingual immunotherapy in America. Allergy sufferers now have an injection-free option on two continents.

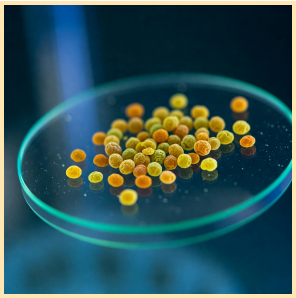
2020 – Food Allergy Desensitisation: A new frontier emerges as the first oral immunotherapy for food allergy is approved. **Palforzia**, a peanut protein powder taken daily, becomes the first FDA-approved treatment to desensitise patients with peanut allergy. It trains peanut-allergic children to tolerate small peanut exposures, reducing the risk of severe reactions.

2022 – NHS Adopts Peanut OIT (UK): The UK's NHS, guided by NICE, approves Palforzia for children aged 4 - 17 with peanut allergy. For the first time, British children have access to a life-changing oral treatment to reduce peanut allergy severity – a major milestone in NHS allergy services.

2025 – New Era for Dust Mite Allergies (UK): NICE recommends a daily house dust mite allergy tablet (12 SQ-HDM SLIT, known as Acarizax) for NHS use . This is the *first* immunotherapy pill endorsed for persistent allergic rhinitis on the NHS, potentially benefiting ~13,000 people with severe dust mite allergies. It's a landmark step that reflects how far immunotherapy has come – from a few injections in 1911 London to convenient tablets for everyday allergies today.

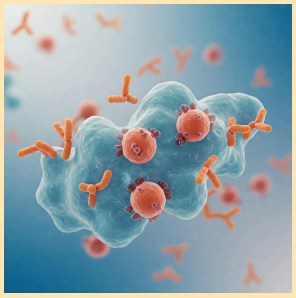
(NICE = National Institute for Health and Care Excellence, the UK health authority that approves treatments for NHS use.)

How Does Immunotherapy Work? (Allergy Desensitisation Explained)



Gradual Exposure:

Instead of a full-blown allergen attack, your body is given tiny doses of the allergen in a controlled way. Over weeks and months, these doses are slowly increased . For example, an allergist might start with a minute amount of pollen extract and ramp up to higher amounts.



Immune Training:

Your immune system essentially learns *"this pollen (or dust, or venom) isn't so dangerous after all."* It stops seeing the allergen as an enemy. In scientific terms, the treatment encourages the immune system to shift response – producing "blocking" antibodies and calming down allergy cells – but you can just think of it as building tolerance.

Reduced Symptoms:

As tolerance grows, real-life exposure to the allergen triggers a much milder reaction, or none at all. After completing immunotherapy, many people have far fewer symptoms and need less medication day-to-day.

Long-Term Relief:

Immunotherapy is a long game – typically a 3-year course for lasting benefits. The payoff is that this *"immune retraining"* can keep working for years after treatment. Someone with debilitating hay fever can finish therapy and enjoy many pollen seasons with minimal allergies. It's not an instant fix, but it offers a chance at near-permanent tolerance.

Not Just Symptoms:

Unlike taking an antihistamine to temporarily relieve a sneeze, immunotherapy changes how your body *reacts* to allergens at the root level. This disease-modifying effect is why it's often described as the closest thing to an allergy "cure" (though it's technically a lasting remission rather than total cure).

Allergy Shots vs. Allergy Tablets – What's the Difference?

Allergy Shots (SCIT – Subcutaneous Immunotherapy)

How it's given: By injection, usually in the upper arm. A doctor or nurse administers the shots, starting weekly (during a build-up phase) and then spacing out to monthly maintenance doses. Treatment typically spans 3–5 years.

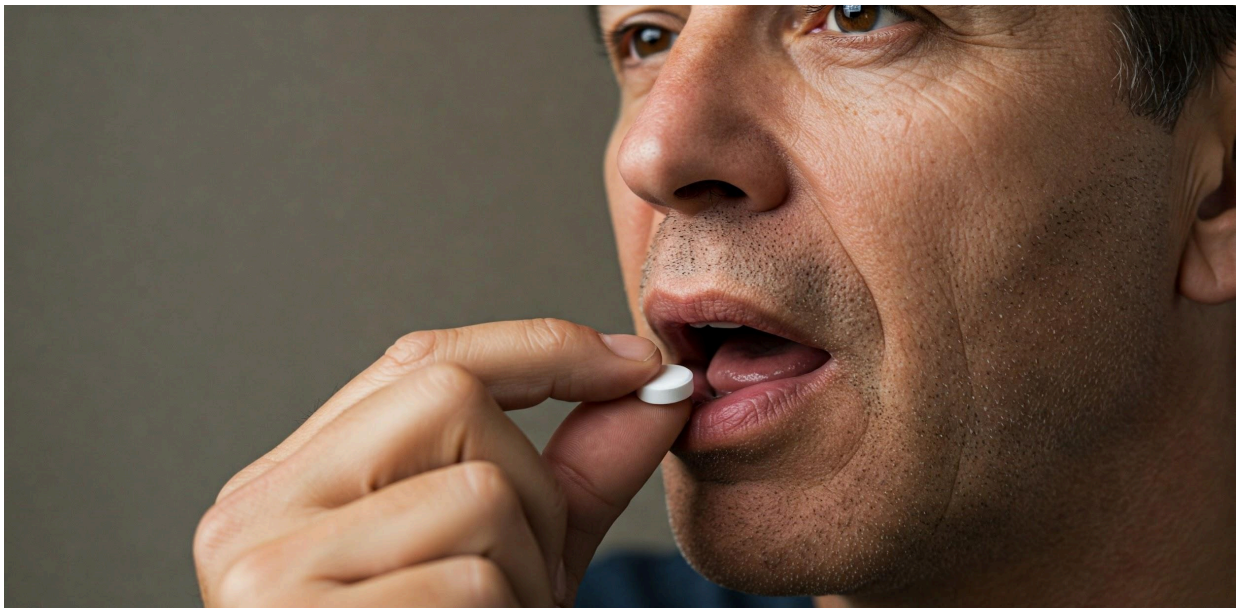
Where: Always in a medical setting. You'll be asked to wait ~30 minutes (sometimes up to an hour) after each injection to ensure no serious reaction occurs. Because a tiny risk of anaphylaxis exists, clinics are prepared to handle any reaction on the spot.

Pros: Time-tested effectiveness (used for 100+ years). Can tailor a mix of several allergens into one shot (useful if you're allergic to multiple things). Provides long-term relief that can last years beyond the treatment period.

Cons: Involves regular needles and clinic visits – not the most convenient. There is a small risk of systemic reactions, so it requires medical supervision each time. Some people experience local swelling or mild asthma symptoms after injections, but serious reactions are uncommon with today's refined extracts.

Usage: Common for severe hay fever, allergic asthma, and venom (bee/wasp) allergy. In the UK, venom allergy shots and severe pollen allergy shots are offered in specialist NHS clinics, given their strong efficacy.

Sublingual Immunotherapy (SLIT)



How it's given: As a tablet or drops under the tongue. The tablet dissolves under your tongue (or drops are held there for 1-2 minutes) daily. The first dose is taken under medical supervision, but after that, you can typically take it at home each day.

Where: Mostly at home after initial instruction. This makes it far more convenient – no frequent clinic visits. It's a good option for those who dislike injections.

Pros: Safe and user-friendly. The most common side effects are mild mouth or throat irritation (itch or tingling), which usually subside over time . Severe allergic reactions are *very* rare with SLIT. Many patients, especially kids, prefer a sweet dissolvable tablet over a shot.

Cons: Requires daily compliance – you need to remember to take it every day for 3 years. Also, each tablet is for a single allergen, though personalised medications are available which cover up to 2 allergies.Fewer allergen types are available as licensed

SLIT products (in the UK, grass and dust mite tablets are available; others like ragweed or tree pollen tablets are more common elsewhere).

Usage: Great for moderate-to-severe hay fever (e.g., grass pollen allergy causing bad summer symptoms) or other allergies when standard meds fall short. Recently approved dust mite tablets help people with year-round dust mite nasal allergies . SLIT is also being explored for food allergies (peanut oral immunotherapy is a form of it, taken by mouth daily).

In summary: Both shots and tablets **require a long-term commitment** and aim to induce lasting tolerance. Shots have a slight edge in customisability (and perhaps for very severe cases), whereas tablets offer ease and comfort. Doctors will recommend what's best based on the allergy type, severity, and patient preference. Some in the UK may start with tablets for pollen allergies due to their safety and convenience, reserving injections for cases that need multiple allergen desensitization or for venom allergies (since there's no sting tablet!). In all cases, the goal is the same – fewer allergies *for good*.

UK Milestones and Highlights in Allergy Immunotherapy

1911 – British Beginnings: Noon and Freeman's work at St. Mary's Hospital in London essentially *invented* allergen immunotherapy . The UK's role in starting this therapy is a point of pride – modern allergy clinics still build on their legacy.

NHS Allergy Clinics: Since the NHS was formed (1948), allergy immunotherapy has been offered in specialist centers. The NHS typically provides immunotherapy for severe cases (like life-threatening insect venom allergy or debilitating hay fever) after other treatments fail. This ensures those who truly need it can get advanced therapy.

1986 – Safety First: After UK reports of immunotherapy-related deaths in earlier decades, the British Committee on Safety of Medicines set the standard in 1986 for safer practice (hospital setting, emergency equipment on hand, patient consent, and observation). These UK guidelines influenced practice worldwide, making immunotherapy safer everywhere.

British Research: The UK has remained at the forefront of immunotherapy research – for example, contributing to early sublingual immunotherapy trials in the 1980s and major international studies (like the PALISADE trial for peanut OIT in 2010s) that demonstrated these treatments' effectiveness.

NICE Approvals: In recent years, NICE has begun approving allergy immunotherapies for routine use:

> *Peanut OIT (Palforzia)* – Approved in 2022 for NHS use in children with peanut allergy, following successful trials. This was the **first food allergy immunotherapy** on the NHS.
>
> *Dust Mite SLIT (Acarizax)* – Approved in 2025 as the first *respiratory* allergy immunotherapy tablet on the NHS. Signals a new era of making immunotherapy part of standard care for severe allergic rhinitis.

Public Awareness: Annual events like the Allergy & Free From Show (where this info is headed!) reflect growing public interest in advanced treatments. The UK's allergy charities (Allergy UK, Anaphylaxis UK) actively educate about immunotherapy as an option for patients, ensuring people know about these developments.

(NHS = National Health Service in the UK, which funds treatments; NICE = the body that evaluates and recommends what the NHS should use.)