



and the essential role of testing



'DECONFUSING' ALLERGY TESTING

With statistics showing that 1 in 3 primary care patients suffers from allergies or allergic symptoms, testing is vital for both ruling out and diagnosing allergies to ensure a quick and accurate diagnosis.

The prevalence of allergic disease and allergic symptoms is increasing throughout the world, particularly among young children. Ongoing studies in this field have led to the understanding that food allergy symptoms in the early stages of life, for example eczema, typically evolve into more severe forms of allergic disease, such as asthma in late childhood. Therefore it is now widely accepted that early diagnosis is critical for successful treatment.

While patient history and general physical assessment are essential for establishing appropriate treatment strategies, laboratories also play an important diagnostic role through in-vitro testing, which provides valuable clinical information.

Getting our terms straight

There is a lot of confusion in the medical world over what an allergy is; and with the classification of different levels of reaction within the category of allergy, the level of confusion is understandable. The terms *food intolerance*, *food allergy* and *food sensitivity* are often used interchangeably, but understanding the differences between them can help with patient diagnosis.

Food Intolerance

The term intolerance generally applies to non-immune reactions to foods and other substances. Examples include lactose intolerance, pharmacological responses to alkaloids in foods, salicylate sensitivities and lectin reactions in which dairy lectin interacts with surface antigens on cells, causing them to agglutinate. Bacteria, bacterial toxins, amines and sulphites can all also cause intolerance reactions. Food intolerance reactions may induce a histamine reaction but this will not be immune mediated. Due to the conspicuous relationship between food consumption and the onset of symptoms, allergy diagnosis is often mistakenly given.

Allergy

An allergy is an immune reaction that can be classified into two areas.

The first is **Acute Food and Inhalant IgE Allergy**. The second is **Food Allergy**.

Acute Food and Inhalant IgE Allergy refers to acute immediate onset reactions initiated by IgE antibodies that result in symptoms such as hayfever, asthma or anaphylaxis. This type of reaction is commonly referred to as classic allergy.

Food Allergy is an immune-initiated reaction that involves both IgE antibodies and other immune-stimulated reactions such as histamine, prostaglandin D2 and leukotrienes. Leukotrienes, (formerly known as slow reactive substance anaphylaxis), are responsible for many of the symptoms associated with classical food allergy but take several hours and sometimes up to three days to appear. This type of food allergy is often missed by traditional methods for testing allergies.

Food Sensitivity

Food sensitivity arises when the immune system is stimulated to produce complexes composed of antigen and antibodies. These activate complement and cytokines in the body, resulting in an inflammatory response. These reactions form the basis of delayed-onset food sensitivity reactions. Symptoms are delayed because of the time taken to form the complexes.

Acute Food and Inhalant IgE Allergy

An acute IgE allergy is an over-reaction to a normally harmless substance found in the environment. Depending on the allergy, reactions may occur seasonally or throughout the year. If you are allergic, the body produces too many IgE antibodies in response to a particular substance. When IgE antibodies react with an allergen (a substance to which you are allergic), your body releases chemicals that cause rapid onset allergic symptoms, such as eczema, rhinitis, hives, and digestive problems.

IgE allergy usually results in an immediate reaction (1-2hrs) to the allergen. IgE-mediated allergies are not inherited, although allergic diseases can tend to run in families. This is particularly true for asthma, eczema, hayfever and rhinitis.

IWDL Genova Diagnostics offer the most advanced technology available in the field of allergy testing. 3gAllergy™ testing offers a quick and accurate test that enables practitioners to optimise treatment plans and enhance patient care. 3gAllergy™ testing can also assist in the differential diagnosis of a variety of conditions including upper respiratory disease, atopic dermatitis and certain ocular diseases.

The introduction of our new allergen specific IgE testing has advanced in-vitro allergy testing to a new level of precision, analytical sensitivity, functional sensitivity and convenience. 3gAllergy™ testing brings quantitative determination of allergen-specific IgE even at very low levels with excellent precision, accuracy and reproducibility. 3gAllergy™ eliminates the need for skin prick testing, saving the patient the distress of provoking a reaction. 3gAllergy™ is the first FDA-cleared, third generation specific IgE blood test.

Common symptoms

- Anaphylaxis
- Acute / Chronic GI Problems
- Asthma
- Hives
- Oral or Ocular swelling
- Itching palate, tongue or ears
- Eczema
- Crohn's disease
- Anaemia
- Rhinitis
- Coeliac
- Sneezing
- Runny nose
- Itching and weeping eyes
- Allergic shiners (children)

Food Allergy - FACTest™

Food allergy is difficult to detect due to the involvement of commonly eaten foods, but it is an important factor in both acute and chronic ill health. Such food allergies are often the result of a disturbance in the delicate balance of the gut environment, poor diet, lifestyle choices and medication. This leads to partially digested foods entering the blood stream initiating a complex immune reaction that can lead to a wide variety of symptoms. In the past, the process of identifying the cause of these symptoms has been both difficult and unreliable.

The incidence of adverse reactions to foods appears to be on the increase. Yet the reported incidence of confirmed food allergy remains at approximately 2% for adults and 5% for children. This is very much at odds with the level of clinically apparent food allergy seen in clinical practice. This discrepancy has been explained by suggestions that food allergy has become fashionable or that it is perceived in the minds of individuals rather than being a true allergy. An alternative explanation would be that the criteria used to establish these figures are based on laboratory test methodologies (e.g. skin prick testing and specific IgE testing) that are inadequate in their ability to detect all mechanisms of food allergy and only test acute IgE reactions. The FACTest™ was born to counteract this problem.

The FACTest™ measures IgE and non-IgE cellular-mediated immune responses such as leukotriene and cytokine that are produced by mast cells and other cell populations. It does not differentiate between IgE and non-IgE; however recent improvements of the FACTest™ have seen the introduction of a total IgE measurement. This allows the practitioner to identify whether any of the reactions reported may be of IgE origin. An IgE food allergy panel or individual allergen test can then be carried out if required. Additionally, the FACTest™ now also incorporates 3gAllergy™, ensuring the most reliable and reproducible results ever.

It is the release of mediators of an allergic reaction and not merely the presence of specific serum IgE that is responsible for the clinical manifestation of a allergy. Unlike acute food allergy, where the reaction to a food can happen within minutes (or up to 2 hrs), non IgE allergies still involve the immune system but generally produce a very slow response to the problem food.

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The symptoms may appear a few hours after eating or at any point up to 48 hours after consumption. Because the food (or foods) in question is being eaten so frequently there is no obvious link between the food and the symptoms. For many with this type of food allergy, it is difficult to pinpoint the exact time or stage when the illness started. The symptoms may begin with mild problems that most of us take for granted, such as headaches, or excessive tiredness or frequent bouts of indigestion. Over the months or years there is a slow decline of health, but it is often so gradual a person may not realise it. Most people who have food allergies notice their symptoms changing from day to day.

Common symptoms

- GI problems
- Eczema
- UTI
- URTI
- Headaches
- Fatigue
- Malnutrition
- Skin problems

IgG Food Sensitivity

Food sensitivities also involve the immune system, as indicated by the presence of IgG antibodies. These result in symptoms that are less profound than classical allergy and more diverse than food allergy reactions. IgG reactions constitute the basis of 'delayed-onset' reactions to food.

Any substance that breaches the integrity of the GI tract will lead to absorption of antigens and the production of food IgG antibodies. These are rarely of any clinical/pathological significance but high levels can clearly correlate with impaired gut function.

IgG antibodies are produced during normal digestion. Small amounts of antigen naturally breach the gut wall but problems occur when production of IgG antibodies are excessive, which happens when more antigen than normal is released into blood. Many believe that IgG antibodies represent a 'normal' response to protein that crosses the intestinal mucosal membrane, while others have demonstrated a clear correlation between food intolerance and gut permeability. Repeated exposure to an antigen can eventually produce allergy-like response or hypersensitivities. These reactions are usually delayed symptoms, often occurring days after exposure, and can result in fatigue, malaise etc. With an efficient immune system, the half-life of the complexes from which IgG are developed may only be a few minutes and exposure may not elicit a symptom. However an overload of the antigen or an inefficient immune system will allow the immune complexes to circulate for longer and be deposited in tissue, thus resulting in symptoms that can take up to 72 hours to appear.

Common symptoms

- GI Problems
- Fatigue
- Malnutrition
- Skin irritations
- RA
- Emotional disturbances
- Headaches
- Vasculitis
- Hypertension
- Recurrent Infection

IWDL GENOVA DIAGNOSTICS RANGE OF TESTS

ALL01	FACTest™	Food Allergy
ALL02	FACTest™ Dairy & Grains Profile	Food Allergy
ALL03	FACTest™ Additive Profile	Food Allergy
ALL04	FACTest™ Antibiotics & Analgesics Profile	Food Allergy
ALL05	IgE Food Panel	Acute Food IgE Allergy
ALL06	IgE Inhalant Panel	Acute Inhalant IgE Allergy
ALL07	FACTest™ & IgE Inhalant Panel	Food Allergy & Acute Inhalant IgE Allergy
ALL08	Comprehensive Food Allergy Profile*	Food Allergy & Acute Food IgE Allergy
ALL09	Individual Allergens	Acute Food IgE Allergy
ALL10	IgE 5-Food Panel Blood	Acute Food IgE Allergy
ALL11	IgE 10-Food Panel Blood	Acute Food IgE Allergy
ALL12	IgG 88-Food Panel	Food Sensitivity
ALL13	IgG Spices	Food Sensitivity
DIG09	Gut Permeability	
DIG11	Lactose Intolerances	Food Intolerance

* This profile also contains tTGA

IWDL GENOVA DIAGNOSTICS

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