

Unproven Diagnostic Tests for Food Allergy



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KEYWORDS

- Food allergy • Diagnosis • Atopy patch test • IgG testing • Provocation
- Electrodermal • Cytotoxic • Kinesiology

KEY POINTS

- Atopy patch testing for food allergies is debatable, and may have an adjunct role in atopic dermatitis and eosinophilic esophagitis.
- Skin prick testing, serum immunoglobulin E (IgE) testing, and oral food challenges remain the currently accepted tests for immediate (anaphylactic) type food allergies.
- Serum IgG testing, provocation/neutralization, electrodermal testing, cytotoxic testing, and applied kinesiology are unproven and currently unaccepted methods to diagnose food allergy.

INTRODUCTION

Although the self-reported prevalence of food allergy is as high as 10% in Westernized countries such as the United States, the prevalence of actual diagnosed food allergy is lower.¹ This discordance often drives patients (and parents of patients) with suspected food allergy to pursue a variety of diagnostic procedures in search of answers and advice. Currently, the gold standard for the diagnosis of food allergy is the oral food challenge (OFC), whereas serum immunoglobulin E (IgE) and skin prick testing (SPT) serve as accepted readily available markers of sensitization to help predict clinical reactivity and obviate challenges. Unfortunately, serum and SPT are only useful for the diagnosis and management of IgE-mediated food allergies, and they have little or no role in diagnosing other food hypersensitivity disorders or intolerances, and the oral challenge can be time consuming, fear inducing, and possibly not readily available to many patients. Thus, many patients may seek alternative diagnostic methods for their (or their child's) suspected food allergy. In fact, based on one report, nearly 1 in 5 patients with self-reported food allergy has undergone unproven

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diagnostic testing.² This testing, if not proven, clearly has the possibility of leading to incorrect diagnoses, unnecessary elimination diets, and altering the quality of life for patients and families. Therefore, it is critical for providers (and arguably patients) to understand the methodology and research behind both proven and unproven techniques in order to counsel patients appropriately. This article briefly reviews proven techniques of food allergy testing for IgE-mediated allergies and focuses on debatable or unproven techniques.

PROVEN TECHNIQUES FOR TESTING IMMUNOGLOBULIN E-MEDITATED FOOD ALLERGY

The following testing modalities are recommended in current guidelines and practice parameters of various organizations and countries and are universally accepted by expert consensus panels on the diagnosis of food allergy (specifically IgE-mediated food allergy).³⁻⁵

Skin Prick Testing

A positive SPT response indicates the presence of IgE specific to the antigen in question and represents an observable physiologic response to that allergen. Although SPTs for foods have high sensitivity, they have low specificity and should therefore be correlated with the patient's history to determine clinical relevance.⁶

Food-Specific Serum Immunoglobulin E

Food-specific serum IgE (sIgE) testing is also accepted as an appropriate first-line test for food allergy and is often used in conjunction with SPT. Similarly to SPT, it also has low specificity and should be interpreted in light of the patient's history.

As an aside, it is worth mentioning that sIgE panels to a large number of foods appear to be increasingly popular, especially among primary care providers.⁷ Panel testing has led to an increased cost per patient, overdiagnosis of food allergy, and unnecessary elimination diets in addition to an emotional and financial burden for patients and their families.⁸ Although these tests are widely available and easy to perform, the use of food allergen sIgE panels is discouraged.

Oral Food Challenges

The double-blind, placebo-controlled food challenge (DBPCFB) is widely accepted as the gold standard for diagnosis food allergy, and there are available reports and guidelines to aid clinicians in performing these appropriately.^{9,10} However, DBPCFB is both labor and time intensive, so the open OFC is more often used in the clinical setting; however, one must be aware that the open OFC can be affected by both patient and observer bias.

OTHER FOOD ALLERGY DIAGNOSTIC MODALITIES

Many of the diagnostic techniques discussed in this section either have not been studied in rigorous trials or have conflicting data regarding their utility.

Patch Testing

Atopy patch testing (APT) is a diagnostic procedure for delayed hypersensitivity reactions and is commonly used in the diagnosis of contact dermatitis. It has been studied in various forms of food allergy, but it must be noted that the methods and interpretation of results have yet to be standardized for foods and APT may be especially difficult to interpret in patients with underlying atopic dermatitis (AD), where irritant reactions

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