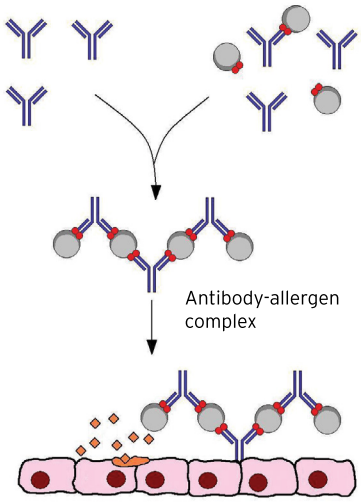
IgG Food Sensitivity
Clinical Information for Professionals

IgG TYPE III DELAYED HYPERSENSITIVITY REACTIONS

OCirculating IgG antibodies form immune complexes with allergen/ antigen (Ag). This is considered a Type III delayed hypersensitivity reaction, and typically occurs over several hours to several days.

Formation of the complexes activates the complement pathway and releases inflammatory mediators.

The IgG-Ag immune complexes are usually cleared by macrophages but, in the presence of excess antigen, macrophages may saturate their capacity to remove immune complexes, causing the excess to be deposited in tissue. Deposition of IgG-Ag complexes causes inflammation and tissue damage, which may contribute to specific health issues.



Deposition of antibody allergen complex into tissue causes inflammation

There are four subclasses of IgG: IgG1, IgG2 , IgG3 and IgG4. All subclasses activate the classical complement pathway except for IgG4. Our IgG test measures all four subclasses, and reports the result as total IgG.

CLINICAL RELEVANCE

Although still controversial in mainstream medicine, IgG food sensitivity testing is starting to accumulate research in support of its clinical utility. For example, 125 patients, identified by an allergist as likely having food allergies, were given blood tests for IgG food reactions. All positive foods were removed for a 6 month period. The allergist considered the treatment a success when a minimum 75% improvement in symptoms occurred. Of the 80 patients who completed the full course, 71% were successfully treated. In particular, there were 11 patients who had positive allergy symptoms, but had negative IgE test results. These patients were all successfully treated by eliminating the IgG food allergens. The allergist concluded that blood tests for IgG reactions to food were clinically useful and much more palatable to patients than the traditional skin prick and oral challenge tests.

Although he acknowledged that the lack of blinding and randomization meant the results could be considered anecdotal, the allergist concluded that eliminating reactive foods was useful clinically.[1]

IgG testing for food is not considered diagnostic for food reactions because a direct cause- effect relationship has not been established. Elevated levels of IgG have not yet been proven to cause patient symptoms, however, more studies are emerging to show a correlation between elevated IgG reactions and a variety of conditions.

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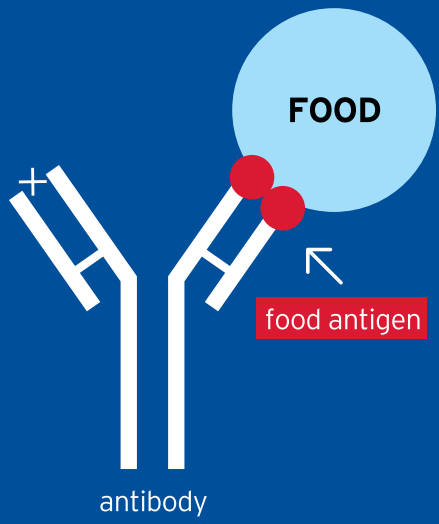
IgG FOOD SENSITIVITY TEST

IGG FOOD SENSITIVITY



IgG delayed onset reactions can contribute to a variety of health problems.abdominal pain, gas, and bloating.

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IgG Food Sensitivity

IRRITABLE BOWEL SYNDROME

A double-blind 2004 British study randomized 150 patients to receive either a sham diet or true diet. The true diet group eliminated all IgG reactive foods, and the sham diet group excluded the same number of foods as showed up reactive, but not the actual reactive foods. The severity of IBS symptoms, non-IBS related symptoms, anxiety/depression and quality of life scores were obtained at the start and again after three months on either diet. At the end of the study, the true diet group had significantly reduced severity of IBS symptoms and overall symptoms compared to the sham diet group.[2]

MIGRAINE

A 2004 study looked at the relationship between IgG food reactions and migraine attacks. In the study, 61 people were tested via IgG ELISA for 113 foods. About 90% of participants eliminated some or all of the reactive foods from their diet. At 1 month, 30% reported marked improvement, and at 2 months 40% reported benefit. Reintroduction of the reactive foods into the diet resulted in return of migraine for 60% of these patients. This study suggests that IgG reactions to food may play a role in the etiology and/or treatment of migraine attacks.[3]

A 2010 randomized, double-blind, crossover trial also showed a statistically significant drop in the number of headache days, and the number of headaches during the six week period when IgG reactive foods were eliminated from the diet.[4]

WEIGHT GAIN / ATHEROSCLEROSIS

A paper published in 2008 reported that obese children have significantly higher IgG antibodies to food antigens than normal weight children. They also found that anti-food IgG antibody concentrations are strongly associated with low grade systemic inflammation and with increased intima media thickness of the common carotid arteries. The study concluded that: "These findings raise the possibility that anti-food IgG is pathogenically involved in the development of obesity and atherosclerosis."[5]

ATOPY

Allergic individuals and those with atopy achieved 70% reduction of symptoms with elimination of IgG reactive foods.[6] In addition, atopic children (with or without eczema) were shown to have higher IgG levels to specific foods than non-atopic children. In children without eczema, higher levels of IgG were still significantly associated with atopy, with elevated IgG most prominently to egg white, orange and cow's milk.[7]

RHEUMATOID ARTHRITIS

Some rheumatoid arthritis patients have shown improvement in symptoms when reactive foods were eliminated from the diet. It has been hypothesized that patients with occasional rheumatitis may experience delayed hypersensitivity food reactions.[8]

ADHD

Although no studies directly correlate elevated IgG levels to specific foods with hyperactivity in children, a few studies have shown improvement in attentiveness and temperament when common food allergens (e.g. wheat, dairy, oranges) were eliminated.

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NON-IMMUNE MEDIATED REACTIONS			
Implicated Substance		**Associated Foods**	**Nausea, Diarrhea, Gas, Bloating, And Abdominal Cramps**
Enzymes	Lactase Deficiency	Lactose In Dairy Products	Nausea, diarrhea, gas, bloating, and abdominal cramps
	Alpha-Galactosidase Insufficiency	Cruciferous Vegetables, Legumes	Gas, bloating
Chemicals	Histamine	Fish, Sauerkraut, Cheese	Headaches, rashes, itching, diarrhea, vomiting and/or abdominal pain
	Methylxanthine	Cola, Coffee, Chocolate, Tea	Anxiety, panic disorders
	Tyramine	Cheese, Pickled Herring	Headache, palpitations, nausea, vomiting
	Tryptamine	Fermented Foods (Soy Sauce), Acacia Species (Incl. Beans)	Restlessness, agitation, gastrointestinal distress, muscle tension, may be hallucinogenic
Toxins	Aflatoxin	Peanuts, Cereal Grains	Chronic exposure: liver disease, increased risk of liver cancer
	Saxitoxin	Shellfish	Inhalation: numbness & tingling of lips, tongue, and fingertips, followed by numbness of the neck and extremities and motor incoordination. Other symptoms may include light-headedness, dizziness, weakness, confusion, memory loss, and headache
	Ergot	Cereal Grains	Numbness, tingling & burning in limbs, feeble pulse, restlessness, stupor, delerium
	Cyanogenic Glycosides	Cassava, Stone Fruits (E.g. Peach, Apricot)	Chronic exposure may lead to thyroid and neurological disorders

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IgG Food Sensitivity

The chart below highlights the clinical picture for the various phases of IgG food sensitivity reactions [Adapted from Dixon and Trevino. Food Allergy. 1997. Thieme Medical Publishing].[9]

CLINICAL PHASES OF IGG REACTIONS		
I	**Hidden Phase**	Small amounts of the reactive food are eaten. Antibody-allergen complexes form, but are removed by macrophages. Patient is asymptomatic.
II	**Symptomatic Phase**	Reactive food is eaten in large quantities and regularly. Large numbers of antibody-allergen complexes form and cannot be completely cleared by macrophages. Patient suffers chronic symptoms.
III	**Trial Avoidance Phase**	Patient removes reactive foods from diet. Levels of IgG antibodies to reactive foods remain high.
IV	**Challenge Phase**	Four or five days after reactive food antigens have been removed from diet, the food antigens have cleared but IgG antibody levels remain high. Patient consumes a large amount of the reactive food and experiences exacerbation of symptoms.
V	**Elimination Phase**	Reactive food is eliminated for 4 to 6 months. IgG levels to the reactive food(s) drop to non- reactive levels.
VI	**Reintroduction Phase**	After avoiding for 6 months, the reactive food is reintroduced. Patient to consume only modest amounts every fifth day. IgG levels rise when reactive food is consumed but because levels are already low, the elevation in IgG is usually insufficient to induce symptoms. Patient may consume modest amounts of the reactive food once every 5 days. Note that it is not always possible to reintroduce reactive foods into the diet without symptoms reappearing. In some cases, it may be necessary for the patient to permanently avoid the reactive food(s).

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References

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LifeLabs FST™ Antigen List

Category	LifeLabs FST™ Basic+			LifeLabs FST™ Enhanced+ *Everything in the Basic+ panel, plus*		
Vegetables	• Beetroot • Broccoli • Butterhead lettuce • Carrots • Celeriac • Chili	• Cucumber • Eggplant • Kohlrabi • Lamb's lettuce • Leek • Olive • Onion	• Potato • Red cabbage • Sweet pepper • Tomato • Zucchini	• Artichoke • Arugula • Asparagus • Bok Choi • Brussels sprouts • Cauliflower	• Celery • Chard • Endive • Fennel • Iceberg lettuce • Parsnip	• Pumpkin • Radish • Savoy cabbage • Spinach • Sweet potato • White cabbage
Fruits	• Apple • Apricot • Banana • Cherry • Grape	• Kiwi • Lemon • Nectarine • Orange • Pineapple	• Raspberry • Strawberry • Watermelon	• Avocado • Blackberry • Blueberry • Cranberry • Currant • Date • Fig	• Grapefruit • Guava • Lime • Lychee • Mandarin • Mango • Mulberry	• Papaya • Peach • Pear • Plum • Pomegranate • Rhubarb
Dairy Products & Eggs	• Cow's milk • Egg white • Egg yolk	• Fermented dairy • Goat dairy • Rennet	• Sheep dairy	• Quail egg	• Ricotta	
Gluten-free Grains	• Buckwheat • Corn	• Millet • Oats	• Quinoa • Rice	• Amaranth • Cassava	• Lupini bean • Teff	
Grains Containing Gluten	• Barley • Gluten	• Rye • Spelt	• Wheat			
Mushrooms	• Meadow mushrooms	• Oyster mushrooms		• Chanterelle	• Porcini mushroom	• Shiitake
Seeds, Legumes & Nuts	• Almond • Cashew • Cocoa bean • Flax • Green bean	• Hazelnut • Pea • Peanut • Pistachio • Poppy seeds	• Pumpkin seeds • Sesame • Soybean • Sunflower seeds • Walnut	• Brazil nut • Broad bean • Chia seeds • Chickpeas	• Coconut • Kidney bean • Lentil • Macadamia nut	• Mung bean • Pine nut • Sweet chestnut • White beans
Spices & Herbs	• Basil • Cinnamon • Curry • Garlic • Horseradish	• Mustard seed • Nutmeg • Oregano • Paprika • Parsley	• Pepper, black • Rosemary • Thyme • Vanilla	• Bay leaf • Black cumin • Capers • Caraway • Cardamom	• Chive • Clove • Coriander • Cumin • Garden cress	• Ginger • Marjoram • Saffron • Sage
Miscellaneous	• Aspergillus niger • Black tea • Candida albicans	• Cane sugar • Coffee • Guar flour	• Honey • Peppermint • Yeast	• Camomile • Carob bean	• Ginkgo biloba • Green tea	• Nori • Wakame
BELOW ARE NOT INCLUDED in the ***LifeLabs FST™ Vegetarian+ panel***						
Fish & Seafood	• Cod • Crayfish • Lobster	• Ocean perch • Pollock • Salmon	• Tuna	• Anchovy • Barnacle • Carp • Crab • Flounder • Gilthead bream • Haddock • Herring	• Mackerel • Monkfish • Mussels • Octopus • Oysters • Pike • Sardine • Scallop	• Sea bass • Shrimp, prawn • Squid/cuttlefish • Swai fish • Trout • Turbut • Zander
Meat	• Beef • Chicken	• Lamb • Pork	• Turkey	• Duck • Goat • Goose	• Ostrich meat • Rabbit/hare • Roe deer	• Veal • Wild boar

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