Food intolerances

The limits and possibilities of food intolerance analyses based on IgG.
IgE and IgG antibodies and their functions

People who suffer from fast-acting food allergies, have large amounts of IgE antibodies in the blood. These incorrectly detect various food proteins as a bacterial infection and trigger an immune response that leads to allergy symptoms. Today it is undisputed that IgE antibodies trigger this reaction, and measuring the levels of IgE antibodies to certain substances is routinely used in the diagnosis of allergies.

However, the immune system also has another type of antibodies, called IgG antibodies, which act primarily against bacteria and viruses. If a person is vaccinated, the body develops specific IgG antibodies which can detect and combat these pathogens. If these pathogens enter the body at a later point, the immune system recognizes this immediately and prevents infection.

The false reactions of IgG against foods

However, in some cases, the body also incorrectly develops IgG antibodies to various foods rather than pathogens. Initially, this was interpreted as an indication of a food intolerance. Various companies started to market tests based on this and touting an interpretation of their results as: “Elevated IgG against food = food intolerance”. However, it soon became clear that an increase in IgG antibodies occurs not only in individuals with symptoms, but also in healthy subjects, so this approach turned out to be clearly wrong. According to studies, 33% of healthy people have increased levels of IgG antibodies in the blood, which apparently has no clinical impact [1].

Due to this unscientific practice, in 2005, Deutches Ärzteblatt published an article that warned against IgG analyses, as IgG are not scientifically proven to trigger food sensitivities [19]. Various allergist associations have since joined them in this opinion.

Scientific evidence regarding IgG since 2005

The medical profession and allergist associations have therefore categorically rejected IgG analyses since 2005, and this 11-year-old opinion is still the current recognized status of conventional medicine. Although new scientific findings still do not justify the currently unscientific practice of IgG analysis, there have been some new findings in the field of IgG. Thus, it has been repeatedly confirmed that healthy people can have quite elevated IgG levels (the most damning criticism of the diagnostic), but it has also become clear that patients have elevated IgG levels much more often [1,6]. Up to 33% of healthy subjects have increased IgG values, while 75.9% of Crohn’s disease patients and 63.6% ulcerative colitis patients have increased IgG values [1], suggesting a correlation between IgG values and symptoms. Also, the presence of certain food-specific IgG levels were significantly associated with the occurrence of various diseases. Thus, since 2005, a number of lines of scientific evidence supporting the link between increased IgG values with migraine [15,12], Crohn’s disease [17], schizophrenia [18], rheumatoid arthritis [2] and celiac disease [3] have been found.

In accordance with these discoveries, an IgG elimination diet (in which food-specific IgG-values are measured and foods for which they are elevated are eliminated from the diet) has been shown in various studies to be effective. Thus, an elimination diet improved the complications of inflammatory bowel disease [16], migraine [10,14], asthma [4] and other complications [7,8] and also improved the subjects’ ability to concentrate [5]. Elimination diets were also shown to
lead to a gradual decrease in the initially elevated IgG levels [3].

Perhaps the most convincing study dates from 2013, in which 14 food-specific IgG antibodies were measured in a very large study population (21305 subjects). In this study, some earlier assumptions were refuted [9]. In 2005, it was thought that IgG antibodies are formed only by contact with the food and do not lead to a clinical impact. The study showed, however, that out of 14 foods only 2 correlated with the consumption of the food. For the majority of foods, there is no link between the quantity consumed and the frequency of its consumption and blood IgG values, which disproved the old assumption. Interestingly, some IgG levels correlate with various diseases and symptoms, but a much more complex picture emerges than was originally assumed. So, for example, a clear correlation between specific elevated IgG levels and eczema, gastrointestinal symptoms, rhinitis, migraine, hives and other symptoms was shown. Surprisingly, it was also found that specific low IgG levels are also associated with various diseases (e.g., low tomato IgG levels were associated with migraine) [9].

Just like for IgE-allergies, there also seem to be so-called cross-reactions for IgG. For instance, IgG antibodies for beef also recognize chicken [9], which may have particular relevance for elimination diets.
Scientific evidence regarding IgG (since 2005)

2005
- Ärzteblatt refutes IgG analyses

2006

2007
- Aug. 2007: IgG elimination diet helps against inflammatory bowel disease [16]
- Sep. 2007: IgG is connected with migraine [15]

2008

2009

2010
- Jan. 2010: IgG is associated with Crohn's disease [17]
- Apr. 2010: Review: IgG analyses have clinical relevance [13]
- Jul. 2010: IgG elimination diet reduces migraine [10]
- Aug. 2010: IgG elimination diet reduces migraine [14]

2011
- Jan. 2011: IgG is connected with specific symptoms (21305 subjects) [9]
- Mar. 2011: IgG is connected with migraine [12]
- Dec. 2011: IgG is connected with schizophrenia [18]

2013
- Mar. 2013: IgG found in healthy subjects are found more frequently in patients [1]

2014
- Sep. 2014: IgG found in healthy subjects are found more frequently in patients [6]
- Nov. 2014: Milk IgG play a part in rheumatoid arthritis [2]

2015
- Jan. 2015: IgG elimination diet improves asthma [4]
- Feb. 2015: IgG elimination diet improves symptoms [8]

2016
- Jan. 2016: IgG found in healthy subjects are found more frequently in patients [6]
Summary
At least 17 scientific studies were published after the 2005 publication of the warning by Deutsches Ärzteblatt and understanding of IgG has grown.

The hypothesis, criticized in 2005, that elevated IgG levels always indicate a food intolerance, is still unjustified and has not been proven by any studies. However, a significant correlation between IgG and various diseases and symptoms that was not yet suspected in 2005 has been shown. Especially the very large study in 2013, where this correlation was detected in 21305 subjects, contributes to our scientific understanding [9].

Permissible conclusions of IgG analysis results
Taking into account the distinct limitations and new findings in IgG diagnosis, some conclusions can now be drawn.

Elevated IgG values do not necessarily indicate an intolerance
The fact that 33% of healthy people have increased IgG levels precludes the interpretation of elevated levels as a food intolerance. however, patients have increased IgG levels twice as frequently (up to 75%), indicating a correlation of the disease and the IgG levels. If, in a very rough estimate, you subtract the 33% of healthy subjects with elevated IgG levels from the 75%, the disease-causing part of the elevated IgG levels can be surmised to be around 42%. The only permissible interpretation at the current stage regarding elevated IgG levels is therefore limited to asserting that elevated levels, although they could perhaps trigger a symptomatic IgG-specific reaction, need not necessarily cause this. Elevated IgG levels in healthy people are thus 100% asymptomatic. Hence, elevated IgG levels in symptomatic people probably consist of a mixture of asymptomatic IgG values and symptom-causing IgG values, insofar as the IgG antibody-mediated intolerance is triggered. An analysis is therefore no direct diagnosis, but an indication of which foods should be further investigated as a possible cause.

Low IgG values could cause symptoms
The large study from 2013 showed that even low IgG levels may be a risk factor for a variety of symptoms [9]. This effect cannot be distinguished from asymptomatic low values by an IgG analysis at the present state of science. It is therefore important to be aware of this limitation of the analyses.
Various causes of food intolerances must be considered

Providers of IgG analyses often tend to neglect other forms of intolerance. It should, however, be compulsory to inform patients that there are other causes of intolerance which must be considered in case of ailments.

An IgG-mediated food intolerance is therefore possible, but it is in no way the only form of intolerance.

Correct application of IgG analyses

1. In asymptomatic individuals, the results of IgG analyses are meaningless. Only IgG values without clinical impact are found in this case.

2. In individuals with complaints, elevated levels are an indication for further investigations (for example, elimination diet), but by no means a diagnosis of intolerance. Probably, only some of the of elevated values cause symptoms.

3. A negative IgG finding does not exclude any incompatibilities due to other causes (e.g. primary lactose intolerance due to genetics). This must also be excluded.
References


[6] Gastroenterology. 2015 Feb;148(2):453-4. IgG and EoE: too soon for a paradigm shift away from IgE. Philpott H1, Royce S1, Nandurkar S1, Thien F1, Gibson P1.


