

# FOOD SENSITIVITIES

Wherever there is an existing health issue or inflammatory response, food sensitivities will worsen it and can add fuel to the fire. They can also increase the risk for genetic predispositions / genetics, and potentially trigger them (epigenetics). Removing a food sensitivity that is causing symptoms may dramatically impact a person's quality of health. If you are eating a food that you are sensitive to, you will be triggering adrenaline. In addition, food sensitivities can affect the mental state, causing and contributing to mental illness. This could be any food, but the biggest culprit is gluten. Elimination diets are therefore recommended to identify whether a food sensitivity is contributing to symptoms.

We can have many different types of responses to foods. It is much more complex than having an anaphylactic reaction due to a true food allergy. Many people associate a food sensitivity with a gut problem but there are many reactions that can occur that may not involve a physical gut symptom.



## Food Allergy v Sensitivity

With food sensitivities, it is not uncommon to have no gut symptoms, but other reactions in the body such as anxiety, mood disorders, headaches, flushing, itching, nasal congestion, skin problems, muscle & joint pain, headaches, breathing difficulties, weight gain, brain fog, lack of concentration, etc.

[www.gutfeelings.uk](http://www.gutfeelings.uk)



### Immune response

- Food allergy (IgE): Immediate wheezing, swelling, itching, anaphylaxis
- Less severe allergy symptoms compared to anaphylaxis include the following which can be different or everyone: -

Blocked or congested nose	Runny nose	Sneezing and coughing	Red, itchy watery eyes	Swelling of the lips, face, and throat
Stomach cramps	Nausea and vomiting	Swollen tongue	Shortness of breath	Sore throat
Red, itchy rash	Diarrhoea	Chest tightness	Difficulty breathing	Headache
Dizziness and fainting	Fever	Fatigue	Changes in heart rate	Low blood pressure

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- Histamine reaction: Nasal congestion, hives, headaches, itching
- Food sensitivity (IgG, IgM, IgA): Delayed inflammation
- Genetic T-cell response: Severe autoimmune response (celiac disease)
- Antibody cross-reactivity: Tissue-specific injury

Most common reported worldwide: -

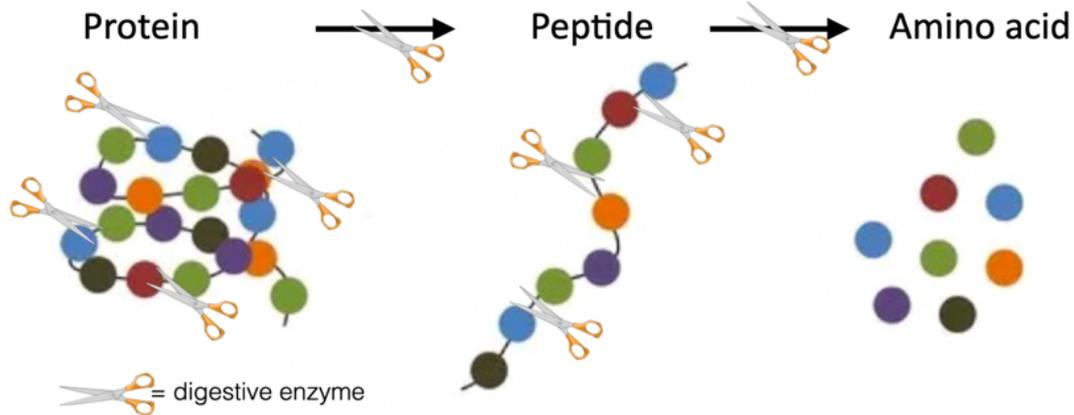
<b>Most common food allergies</b> <b>IgE – immediate response</b>	<b>Most common food sensitivities</b> <b>IgG, IgM, IgA – delayed, systemic response (up to 72hrs)</b>
Cow's Milk Peanuts Tree nuts (walnuts, almonds, pecans, Brazil nuts) Shellfish Fish Soy Egg Wheat	IgG can occasionally give an immediate reaction though if there is enough IgG Gluten (protein in wheat, barley, rye, spelt, couscous, beer etc) Casein (milk protein, especially cow's milk) Albumin (egg white) Soy Nightshades (tomato, aubergine, potatoes, all types of peppers) Lectins (beans, lentils, nightshades)

For those who have inflammatory conditions, head injuries or autoimmune conditions such as arthritis etc food sensitivities become very important as every additional burden can make the disease or inflammation worse. Those who do not have symptoms may still have immune responses to some of these foods but because their inflammatory system can still adapt well to the inflammatory responses.

The immune response cannot take place against a *single amino acid* (building blocks of protein) but antibodies bind to a sequence of amino acids. There are proteins (amino acids) in all foods, including vegetables, nuts, seeds as well as meat, eggs, milk etc. Think of proteins a chain or a pearl necklace that need to be snipped off individually into peptides, and then into their smallest units, amino acids, by an enzyme. The immune response cannot take place against a single amino acid (building blocks of protein) but antibodies bind to a sequence or chain of amino acids. Think of them like a chain or a pearl necklace that need to be snipped off individually by an enzyme. In most cases an immune reaction is to a protein sequence, but not 100% always so.

Gluten protein, for example, has a very long chain of amino acids, so it is hard, and takes longer to break down than other proteins. The faster we can break down this chain of amino acids with our digestive enzymes, the less reactive that protein becomes. If the amino acid sequence isn't broken down quickly enough and lingers around, then antibodies continue to be formed against that protein which perpetuates the ongoing immune response. You don't necessarily develop an immune sensitivity or immune reaction to an individual food, you develop a reaction to an amino acid sequence and lots of different foods share the same amino acid sequence.

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The immune response cannot take place against a single amino acid (building blocks of protein) but antibodies bind to a *sequence* of amino acids. Think of them like a chain or a pearl necklace that need to be snipped off individually by an enzyme. For example, gluten has a long chain of amino acids and the faster we can break down this chain of amino acids with our digestive enzymes, the less reactive that protein becomes.

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There are also many other issues with foods that can cause problems in some people and are not allergies or sensitivities so they will not show up on a food allergy or sensitivity test which is why many people can be confused as they know they have reactions to certain foods.

## Symptoms of Food Sensitivities

- Fatigue
- Joint pain, especially sites of previous trauma
- Swelling
- Muscle aches & pains, always needing massages, treatments
- Brain fog
- Dizziness or fainting
- Headaches
- Anxiety
- Weight gain / inability to lose weight
- Skin problems (acne, eczema, rosacea etc)
- Sneezing, wheezing, breathing problems
- Nausea
- Red, itchy eyes, sneezing, coughing
- Blocked / congested nose
- Chest tightness
- Low blood pressure
- Diarrhoea
- Gut problems (can have other sympoms & no gut issues)
- Food sensitivities add fuel to the fire of existing inflammation
- Reactions may take up to 72 hours

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Food allergy testing will ONLY test an immune response to foods. There are other types of response.

## Maldigestion response

- Hydrochloric (HCl) acid: Intolerance to protein foods
- Pancreatic enzyme insufficiency: Intolerance to starchy foods
- Gallbladder dysfunction: Intolerance of fats, oils, and fried foods
- Small intestinal bacterial overgrowth (SIBO): Intolerance of fibres and sugars

## Neurological response

- MSG reactions leading to diverse neurological symptoms. MSG (monosodium glutamate) is a common source of reactions. However, a reaction to MSG isn't technically a food sensitivity. Reactions are most often neurological as MSG is an excitotoxic compound pushing a fragile brain state over the edge. People with some degree of neurodegeneration or injury to the brain may experience adverse reactions to MSG. Symptoms can depend on which part of the brain is the most affected. For instance, if you have an injury or degeneration in the cerebellum, MSG exposure may cause dizziness or vertigo.
- Aspartame reactions leading to headaches, visual problems, and neurological symptoms
- MSG and Aspartame should not cause a problem in a healthy person so if there is a reaction it is a red flag that a person may need support.

## Vascular response

- Vascular spasm/constriction leading to headaches and flushing

## Mould reaction

- Aflatoxin reactions such as pain, wheezing, and neurological symptoms

## Food additive reaction

- Sulfites (e.g., wine, grape juice, dried fruits, molasses, maple syrup, dried / processed meats, bottled lemon juice etc),
- Nitrates (deli meats, bacon, ham, sausages, hot dogs, processed meats),
- Food colourings (when you combine food protein with food colouring, the protein structure of the food changes and can make foods more antigenic than they were before) -> headaches, mood swings, fatigue. In the picture below, the blue colour is binding to her tongue epithelium (tissues) – essentially chemicals binding to protein. Food colouring will prevent digestive enzymes from breaking down the protein (the scissors in the image at the beginning).



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When considering food intolerances and lab testing, here are some things to know about the different antibodies involved:

- IgA: Immune response mainly in mucosal tissues, such as gut, nasal, mouth, and lungs
- IgG: Part of the memory immune response
- IgM: The earliest antibody response

**MOST COMMONLY REACTIVE FOODS** The foods that most commonly trigger an immediate IgE (food allergy) response are:

- Wheat                      Cow's milk
- Peanuts                    Tree nuts
- Shellfish                  Fish
- Soy                          Egg

The foods that most commonly trigger a delayed IgG, IgM, and/or IgA (food reactivity) response are:

- Gluten (wheat)  
Casein (dairy)
- Albumin (egg)
- Soy
- Nightshades (tomato, eggplant, potato, peppers)
- Lectins (beans, lentils, nightshades)

It is important to understand some key concepts related to food sensitivity testing:

- Whether a food is cooked or raw can determine whether it is immune reactive for you - many labs only test raw forms of foods. The structure of the protein changes when cooked, so a person can be fine tested with a protein structure of a raw food, but they have a problem with the protein structure of same food when it is cooked, so you can then get a false negative.
- A food's immune reactivity can change based on whether it is combined with other foods. As an example, someone may have a reaction to a sausage which has several combined proteins, but they can be fine with each ingredient separately on their own. This would again have a false negative on a test.

## Cross reactivity (molecular mimicry)

- Foods can cross-react with other foods. If two foods have identical amino acid sequences, you can react to both if you are sensitive to one. A common example is dairy which cross reacts with gluten. If you have a gluten sensitivity, you may also react to dairy. This can also explain why you test positive to a food you don't eat. See the similar structures below.

<b>Consumed food</b>	V Q E S L L K F L A E E A D R K
<b>Food not consumed</b>	K Y S K A L K H I A E E A D R K

- Foods can cross-react with body tissue.

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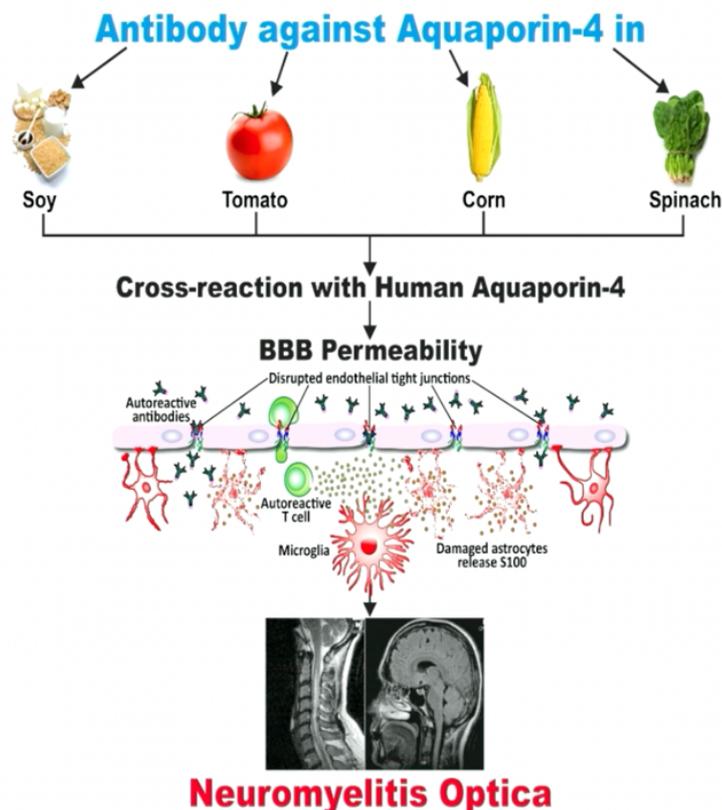
- This means if you have an immune reaction to a particular food your immune system may also target tissue in the body with identical amino acid sequences. Examples are gluten cross reacts with thyroid tissue and shrimp, crab, prawn and lobster cross-reacts with antibodies that trigger autoimmune ulcerative colitis. They have a protein sequence very similar to a human protein and specifically to tropomyosin which is the autoimmune target site of ulcerative colitis. So, some people that have antibodies to tropomyosin and have gastrointestinal autoimmune disease, if they consume shellfish and make the antibodies it can really flare up their autoimmunity.
- Tropomyosin is also a protein found in the smooth muscles of the bladder, and some people that have interstitial cystitis and they eat certain foods, and those foods may cause a delayed immune reaction so the antibodies go up in 2-3 days, their interstitial cystitis can flare up because they had shellfish.

**Shrimp** QQLENDLDQVQESLLKFLAEEADRK  
**Human** LKGTEEDELKYSKALKHIAEEADRK

- A food can be immune reactive due to either cross-reactivity or because it triggers the immune system directly.

Food protein amino sequence SNSSTLDLASINQRGRDHA  
 Human protein sequence TESSTLDFAPFQQFGRDHP

Some subsets of people might react to aquaporin which is a protein in the neurological / nervous stem – soy, spinach, corn, and tomato all contain aquaporin.



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Antibodies made against spinach, soy, corn, and tomato are so similar that if someone has, in combination with this antibody production, a loss of immune tolerance (severe immune dysregulation), these antibodies can now trigger a specific autoimmunity.

Altern Ther Health Med. 2015;21(suppl 1):33-44.  
**Molecular Mimicry as a Mechanism for Food Immune Reactivities and Autoimmunity**

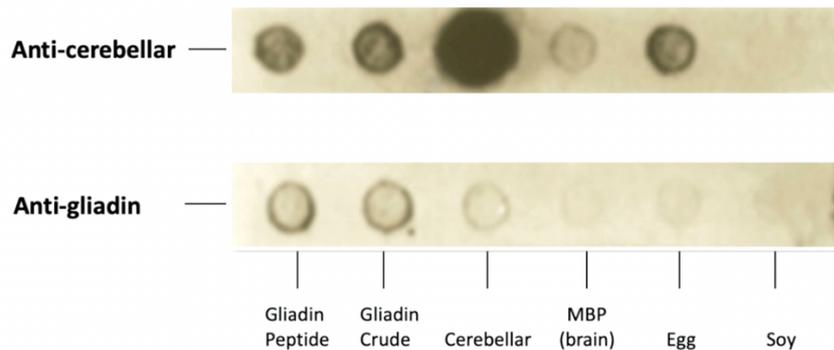
## Human and food aquaporins similarity

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Human AQP-4 207-232: YTGASMNPARSFGPAVIMGNWENHWI
Soy AQP-4 193-218 : FDGASMNPAVSFGPAVVSWTWSNHVW
Human AQP-4 207-232: YTGASMNPARSFGPAVIMGNWENHWI
Corn AQP-4 196-221: FTGASMNPARSFGPALATGDWTDNHWV
Human AQP-4 207-232: YTGASMNPARSFGPAVIMGNWENHWI
Spinach AQP-4 216-241: ITGTGI NPARSFGAAVIFNSNKVWDD
Human AQP-4 207-232: YTGASMNPARSFGPAVIMGNWENHWI
Tomato AQP-4 194-219: FSGGSMNPARSFGPAVVAGDFSQNWII
    
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Molecular mimicry between gluten to cerebellar tissue (the cerebellum is at the back of the brain and controls fine motor movement). If someone has neurological antibodies to their cerebellum, if they consume egg protein or gliadin, there is a chance that those specific proteins, because of their specific amino acid sequence similarity can trigger neurological autoimmune disease.

Nutr Neurosci. 2004 June;7(3):151-161.  
**Immune Response to Dietary Proteins, Gliadin, and Cerebellar Peptides In Children With Autism**



Dot-blot immunodetection

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Cross-reactivity. The virulent factor of *Candida albicans*—hyphal wall protein 1—shares similar sequence homology of amino acids with gliadin. Is *Candida albicans* a trigger in the onset of celiac disease? *Lancet* 2003; 361:2152–4. <https://pubmed.ncbi.nlm.nih.gov/12826451/>

Coeliac patients given probiotics didn't react as much to gluten. <https://pubmed.ncbi.nlm.nih.gov/20951830/>  
Examples of cross-reactions

Inhalant Allergen	Food Allergens
Birch pollen	Apple, raw potato, carrot, celery, hazelnut, pear, peach, plum, cherry
Mugwort pollen	Celery, apple, peanut, kiwi fruit, carrot, parsley, spices (fennel, coriander, aniseed, cumin)
Ragweed pollen	Melons, e.g., watermelon, cantaloupe, and honeydew, bananas, daisy family, chamomile tea – did chamomile tea make them wired before bed which is the raised histamine – ask if they have allergy to ragweed.
Latex	Avocado, kiwi fruit, chestnut, papaya, banana. Does the mouth tingle when they eat avocado – think about latex.
Chironomidae (nonbiting midges, or lake flies) – cockroach (could even be particles inhaled)	Crustaceans (shellfish)

Antibodies in certain subsets of people may contribute to:

- Joint pain and swelling = joint tissue cross-reactivity
- Dizziness = cerebellum cross-reactivity - especially gluten / gluten ataxia, where gluten antibodies against gluten bind to the cerebellum, the area in the brain involved in motor movement.
- Blood sugar dysregulation = pancreas cross-reactivity
- Lectins: foods such as tomato seeds, aubergines, nightshades, contain proteins similar to cartilage.

## THE IMPACT OF FOOD SENSITIVITIES ON HEALTH

Food sensitivities commonly impact health in various ways. Remember that food sensitivities typically cause delayed reactions, which can make identifying the triggering food difficult. Food sensitivities add fuel to the fire — wherever there is an already existing health issue or inflammatory response, food sensitivities will worsen it. They can also worsen your risk for various disorders and diseases to which you are genetically prone. In many cases, removing the food(s) causing symptoms can dramatically impact a person's health and quality of life

### Skin reactions

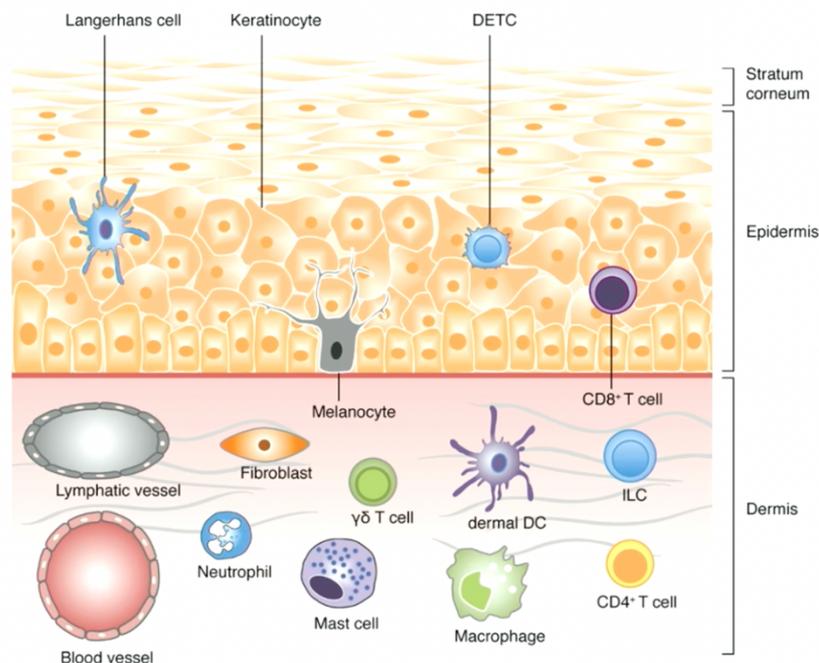
The skin is part of the immune system and contains many immune cells. Food sensitivities can flare autoimmune skin conditions or cause reactions in the skin:

- Psoriasis
- Rosacea
- Lichen planus
- Vitiligo
- Unknown skin reactions
- Eczema
- Hives
- Pityriasis versicolor
- Acne

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The skin is part of the immune system and there are a lot of immune cells on the skin, so when antibodies get triggered in the gut and the proteins get into the bloodstream through gut permeability (leaky gut), and into systemic circulation, the proteins can stimulate immune cells in the skin. During inflammatory response, they will trigger an immune response in the dermal layer of the skin to activate and flare up the epidermis which can trigger many different types of skin conditions. So, if someone has skin conditions, one would consider food sensitivities as one part of the picture.

## Systemic Inflammation and the Skin



Front. Immunol., 17 September 2013 | <https://doi.org/10.3389/fimmu.2013.00286>

**Kharrazian Resource Center**  
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### Joint pain and swelling

Food sensitivities will often cause pain and swelling in previously injured joints. They can also trigger or flare autoimmune joint diseases such as rheumatoid arthritis. If you notice certain foods cause swelling of your joints, you should be screened for joint autoimmunity. Food sensitivities will amplify / increase inflammation in the body, it will add fuel to the fire. If just one joint is affected, it is usually a joint that has been injured, or a weakness, because food sensitivities will trigger the whole inflammatory response so wherever there has been an injury, this is where inflammation will show up first.

For example, if you'd had a tear in a lumbar disc, and you get exposed to a food that you react to, perhaps milk for instance, then every time you eat milk you can get back pain. Or you have a knee injury or neck injury, and you react to gluten, every time you eat gluten, pain can occur in this area. This happens because there is always some inflammation in the tissue and a food sensitivity makes it worse. These injuries can be expressed years later when they are exposed to foods that cause inflammation.

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If all of the joints in the body become swollen or painful with exposure to a food sensitivity, that is more of a person who is heading toward rheumatoid arthritis, which is an autoimmune issue.

Some people may get swollen on eating certain foods, but may find it hard to identify the foods because of the delayed reaction to sensitivities (up to 72 hours)

## **Muscle tightness and pain**

This is a common symptom of food sensitivities. Food sensitivities can chronically inflame muscles, causing pain and stiffness. If you constantly feel you need massages, hot showers, hot tub soaks, or other remedies for muscle pain or stiffness, consider food sensitivities.

## **Diverse Gastrointestinal Symptoms**

Changes in bowel movements, stomach pain, reflux, pain and cramping in the abdomen may be related to a food sensitivity. The majority of the immune system is in the gut so when there are dietary proteins that are triggering an immune response it can cause dysfunction throughout the GI tract, everything from the stomach all the way down to the colon.

## **Fatigue**

Chronic inflammation from food sensitivities can cause ongoing tiredness and fatigue. This is because inflammation prevents the cells' mitochondria from producing sufficient energy.

GI issues Food sensitivities can cause a diverse array of gut symptoms:

- Changes in bowel movements
- Stomach pain
- Ulcers
- Acid reflux and heartburn
- Abdominal pain and cramping

## **Overall Swelling**

Food sensitivities can cause overall swelling and puffiness throughout the body.

## **Brain fog, cognitive decline, mood disorders, and dementia**

Food sensitivities can cause inflammation in the brain, which produces symptoms such as brain fog, memory loss, poor concentration and decline of overall brain function. If it goes on long enough, it can lead to neurodegenerative disorders such as dementia.

## **Weight gain and inability to lose weight**

The inflammation from food sensitivities can cause fat cells to become pro-inflammatory, causing weight gain and preventing weight loss.

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Food *sensitivity* reactions: -

- Skin reactions                      Mucous congestion
- Brain fog                              Slow metabolism
- Fatigue                                Depression
- Chronic pain

Food *allergy* reactions: -

- Anaphylaxis                        Allergic rhinitis
- Allergic sinusitis                Asthma
- Allergic conjunctivitis

Antigenic foods combined with mechanisms such as leaky gut, poor digestion, genetic susceptibility, and loss of immune tolerance increases the risk of food sensitivities.

## Why do we develop food sensitivities?

Food sensitivities have become increasingly common, particularly among children. Modern food growing and processing methods are one reason for the increased incidence.

Modern reasons for food sensitivities

- A poor-quality modern diet (fast foods, junk foods, processed foods, high sugar, lack of fibre, lack of produce, etc.)
- Pesticides
- Chemical pollution
- Hybridization of seeds
- Genetic modification
- Food processing
- Stress – the more dehydrated we are, the more sensitive we are generally to foods

Loss of immune tolerance also plays a role in food sensitivities. New antigenic proteins from the factors above, improper digestion, chronic inflammation, poor liver function, poor microbiome diversity, and leaky gut can all contribute to loss of oral tolerance. This activates gut immune cells to become hyper reactive to foods that enter it. As a result, a person develops an increasing number of food sensitivities. Loss of oral tolerance is frequently accompanied by loss of chemical tolerance (chemical sensitivities) and loss of self-tolerance (autoimmunity).

A good way to find out whether you are sensitive to certain foods is by eliminating them from your diet. Eliminating dairy, grains, nightshades, and lectins (legumes, nuts and seeds) for at least 3 weeks, then reintroducing the foods one at a time and waiting for 3 days each time to observe any reaction. If you do react to a food, wait until your symptoms are resolved before reintroducing another food.

When you begin to reintroduce foods after a period of time, you may be surprised to find that some foods cause pronounced reactions. This does not mean you suddenly became sensitive to that food. Instead, it means your immune system has had a chance to recover and can now produce a more robust response.

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## TESTING

According to Dr Datis Kharrazian, finger prick food sensitivity tests that test for multiple foods are not reliable. Testing is complicated which is why I do not do laboratory testing for food sensitivities.

Blood tests: If you have not eaten a food for 2–4 months, you will not produce antibodies to that food on a lab test and it will show up negative.

If your immunoglobulins (antibodies) are depleted due to immune exhaustion, you can have false negatives. It is therefore ideal to test your total immunoglobulins before doing a food sensitivity test.

Food lab tests will test for IgE (allergy), and private testing will also involve food sensitivities, but it may depend on the lab as to whether they focus more on IgG (part of the memory immune response and most common immune response), IgA (typically involves the mucosal membranes - gut, nasal, mouth, lungs – often a saliva or stool test), or IgM.

Food allergy blood testing will ONLY test an immune response to foods, it will not test for a maldigestion response, vascular response, neurological response, aflatoxin response, food additive reaction, and depending on your test, may or may not test for an IgG, IgA or IgM sensitivity response.

For example, you may do a test for an IgG response to gluten which comes back fine, but you might actually have an IgA response, although usually you will get an IgG, IgA and IgM responses to the same food, so generally an IgG is a good bet for sensitivity.

There is no one test that will do everything. You will normally need to purchase Allergy & Sensitivity test kits separately. Allergy would be an IgE Test kit and a Food Sensitivity / Intolerance test are usually just IgG (which is the most common sensitivity reaction) but don't usually include IgM or IgA.

IgA can be tested through saliva or stool as it involves mucus membrane reactivity (you won't see IgG or IgM though in saliva testing).

Skin testing and patch testing are outdated method and not reliable, and many allergies and sensitivities do not express themselves through the skin anyway, so you may well get a false negative if the reaction you get is a headache or anxiety or gut symptoms etc.

Best food sensitivity private laboratory test is by Cyrex Labs.

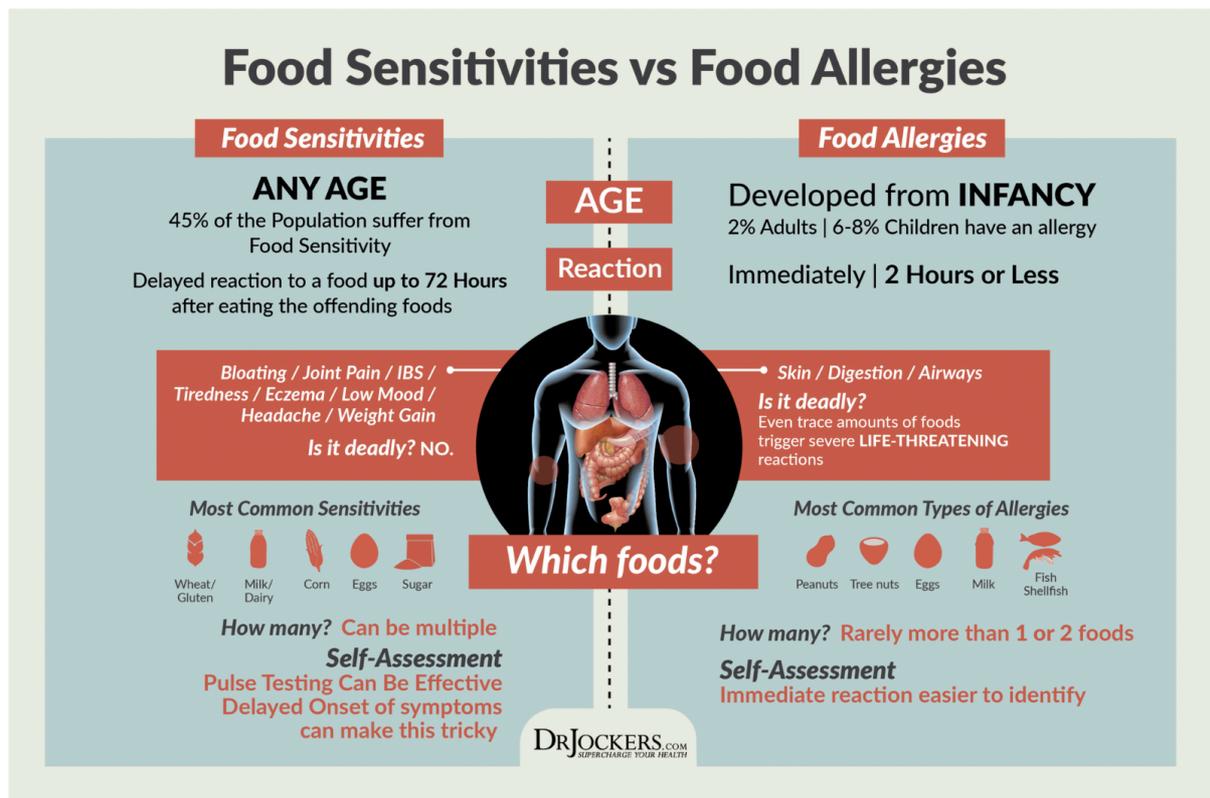
If you stop eating a food protein for about 4 months and you are very strict with it, your body will stop making antibodies against it. So, there is a 2-4 month window when if you stop eating the food protein, you stop making antibodies for the food. However, that doesn't mean that the food won't show up on a lab test even though you haven't been eating it because if the immune reaction to a particular food protein shares a similar sequence with amino acids with another food protein, a person may test positive on lab tests lab results even if the person is no longer eating that food. This is due to protein sequence cross-reactivity.

An example would be if someone stopped eating salmon for many months and they did a lab test and salmon shows up. The reason could be because they are eating other fish, such as sword fish, that has a similar amino acid sequence to salmon, so when they do the blood test the cross-reaction foods can show up.

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With most clients, who have online/remote consultations, I tend to do food challenge testing by removing challenging foods temporarily, and clients can also test at home using the Coca Allergen Pulse Test method - see Allergen Pulse Test on my Face Sheet website page.

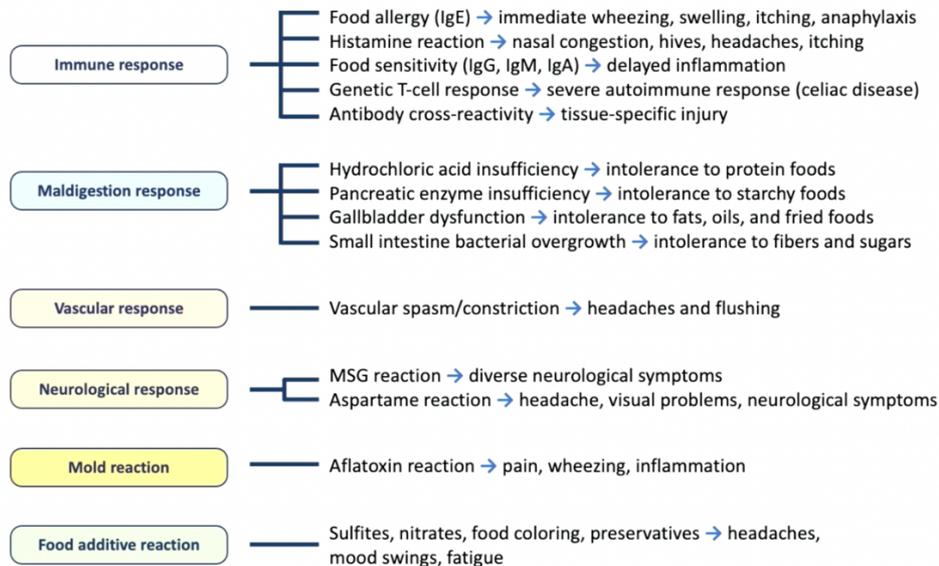
However, I am also trained to use Kinesiology Muscle Testing with food vials for clients, and clients can also bring their own foods. This can be included in a first Naturopathic Nutritional Therapy consultation, along with iridology if you attend clinic in Buckinghamshire. Food muscle testing can also be included in one hour follow ups for existing clients.



Cont.....

# FOOD SENSITIVITIES

## Types of Physiological Reactions to Foods



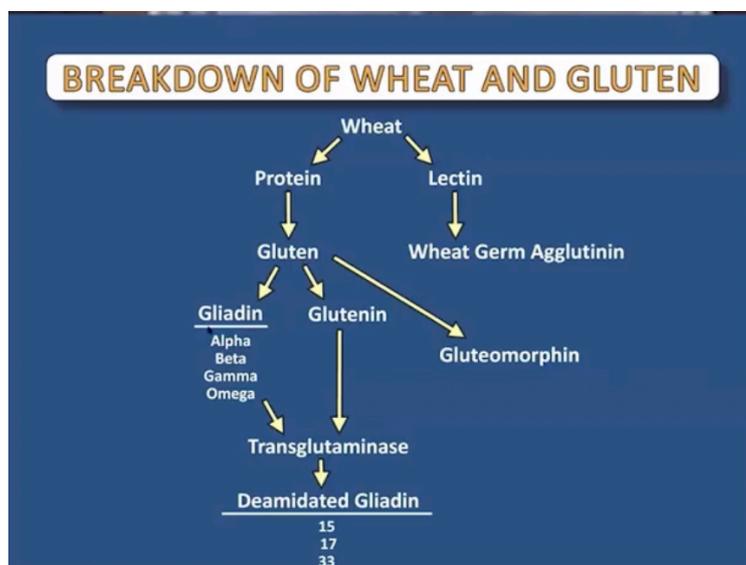
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*Much of the above Information is from the Food Sensitivities: Solving the Puzzle: Workbook by Dr Datis Kharrazian*

### GLUTEN (for much more information see my separate Gluten Fact Sheet)

"When you look at the protein portion of wheat, gluten can be broken down to gliadin and glutenin, so there are different structures of the gluten protein and different branches of gliadin. These gluten proteins get metabolised by an enzyme in the gut called transglutaminase into what is called deamidated gliadin. So, there are many different parts of gluten you can have an immune response to. You can technically have an immune response just to glutenin and not to gliadin. When most people get tested for gluten sensitivity, they are getting an alpha-gliadin test, they are not getting Geta or Gamma gliadin or other parts of wheat." Dr Datis Kharrazian



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