Glow Inside & Out

glow by Elly

HomeDNA

Food & Pet Sensitivity

Analysis + Report

Food & Pet Sensitivity DNA Analysis

Name: Kayla Buist

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Gluten

Gluten: Your Results

Gluten: Moderately Sensitive

Gene Tested	Your Profile
HLA-DQ8 - rs7454108	TT
HLA DQ 2.2 - rs7775228	TT
HLA DQ 2.2 - rs4713586	AG
HLA DQ 2.2 - rs2395182	TT
HLADQ2.5 - rs2187668	TC
HLA DQ2.2/2.5 - rs2858331	AA

Conclusion Statement: People with your genetic markers have an increased risk and increased sensitivity in general to gluten than other people without these mutations and genetic markers.

About Gluten Sensitivity: Gluten is a protein in wheat, barley, and rye. Humans with certain mutations, do not have the enzymes to break down gluten, leaving tiny particles of gluten in the digestive tract may cause sensitivities for certain individuals.

Common Symptoms: Sleepiness after eating, stomach upset, foul-smelling gas, difficulty concentrating, bloating.

Gluten

What is Gluten?

Some cereal grains, including wheat, barley, rye, and spelt, contain gluten, a large protein complex. The enzyme tissue transglutaminase enzymes (tTG) digest gluten in the intestine (Helmerhorst et al., 2020). The deaminated gliadin peptide is formed when this enzyme breaks down the large gluten molecule (Czaja-Bulsa., 2015).

Aim for Nutrient–Rich Foods

While reducing/removing any foods, ensure you eat many nutrient-rich foods, including green vegetables, fibrous gluten free grains (such as brown rice and quinoa) and healthy fats (such as avocado and olive oil). Eating a Mediterranean -based diet has been found to be helpful for many individuals. As many individuals with gluten sensitivity have difficulty absorbing important nutrients, it's key that you include these foods in your daily diet and if needed, use required supplements as directed by your medical practitioner.

Gluten

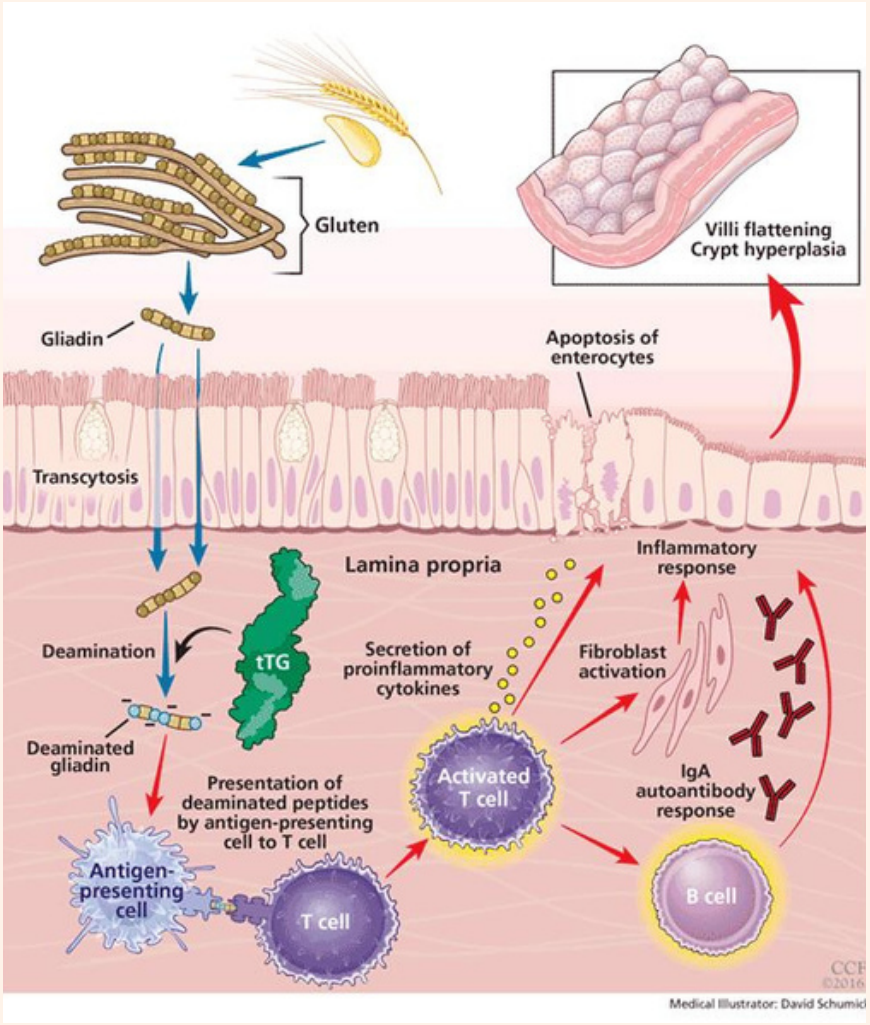
Gluten and the Immune System

MHC (Major Histocompatibility Complex) is also known as the HLA system (Human Leukocyte Antigen System).

This HLA System protects the body from antigens and invaders. Any substance that comes from outside the body, such as bacteria, viruses, allergens (pollen), toxins in the environment, or food antigens, is considered an antigen.

Genetic mutations are most prevalent in the HLA System of the human genome (Lázár-Molnár & Snyder., 2018). As a result, our genetic makeup plays an important role in how we respond to food, food intolerances, and food allergies (Lázár-Molnár & Snyder., 2018).

Cells that present antigens are part of the HLA response. Detecting antigens and alerting the immune system are the functions of APCs, which are specific immune cells.



Gluten

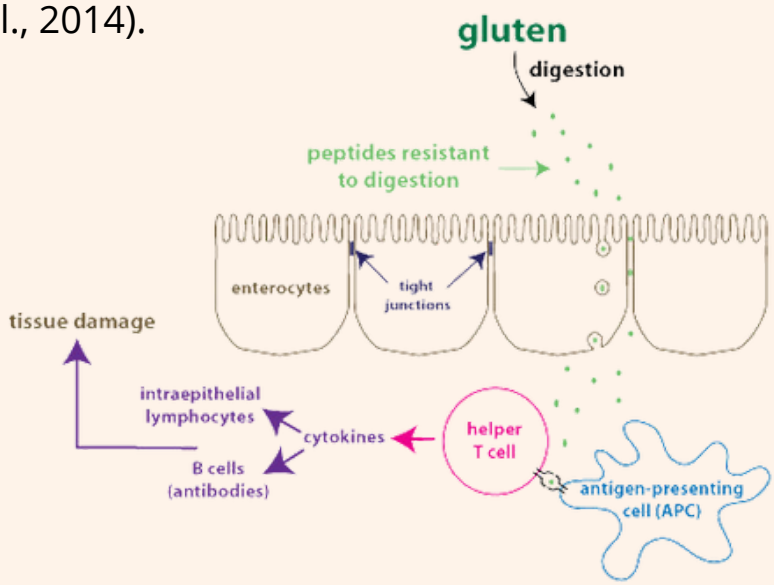
Gluten Intolerance and Antigen–Presenting Cells

When individuals are gluten intolerant due to HLA DQ2.5/DQ8 mutations, the deamidated gliadin peptide is perfectly inserted into their Antigen Presenting Cells (APCs), which presents the gliadin peptide as a threat to the immune system (Hung., et al. 2019). Gliadin peptides do not fit into receptors in people without the mutation.

T helper cells can be significantly activated once gliadin binds to the CD4+T immune cell receptor. Inflammatory cytokines are released while this gliadin/immune complex is present. HLA mutations determine the strength of the bond between gliadin peptide and CD4+T cells (Hung., et al. 2019).

Antigen Presenting Cells trigger an immune response when HLA mutations occur, which increases the risk of many autoimmune diseases. Specific HLA genes play a role in triggering TH1 and TH17 immune responses in many autoimmune diseases (Sollid & Jabri., 2013). Autoimmune disease is linked to Th17, according to research (Zambrano-Zaragoza et al., 2014).

Autoimmunity and chronic inflammation can be caused by Th17 dominance. Gluten consumption increases the risk of immune dominance and immune tolerance loss for people with HLA mutations (Zambrano-Zaragoza et al., 2014).



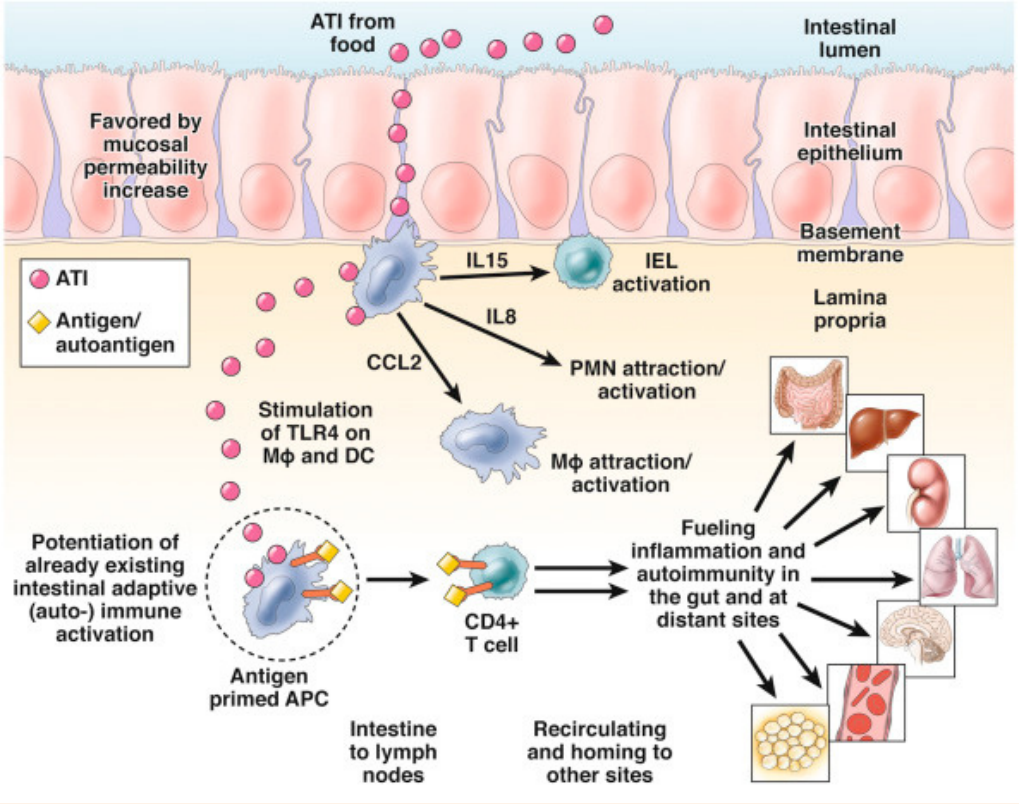
Gordon, S.R. et al. (2012)

Gluten

Gluten Intolerance and Sensitivity and Immunoglobulin G Response

Research shows that gluten can lead to an increase in Immunoglobulin G (IgG), one type of antibody, in people with genetic mutations associated with gluten intolerance (Caio, Volta, Tovoli, De Giorgio., 2014). An increase in IgG levels can result in:

- Increased food sensitivity.
- Gastrointestinal dysfunction.
- Autoimmunity



(Fasano, Sapone, Zevallos & Schuppan., 2015)

Amylase trypsin inhibitors (ATI) are commonly ingested immune stimulatory proteins, mostly present in dietary wheat, rye and barley

Try a Gluten–Free Diet

Following a gluten-free diet (removing wheat, barley and rye products) has been shown to help people improve their symptoms. Book a follow up 45 minute consultation with your Glow by Elly practitioner to review how to healthily achieve this.

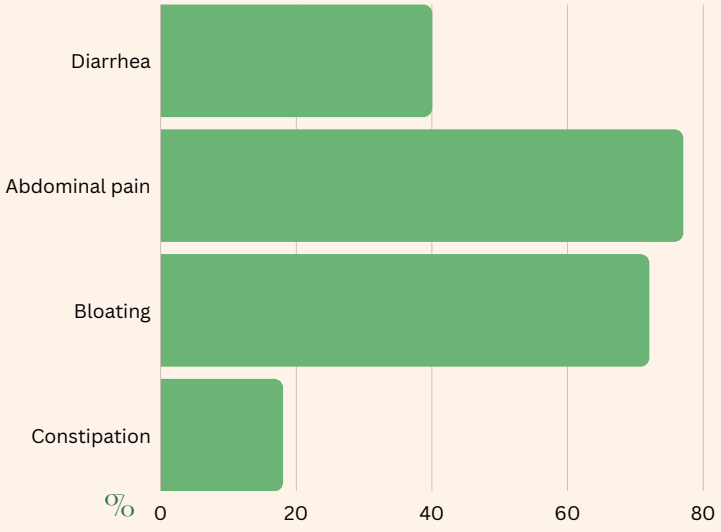
Gluten

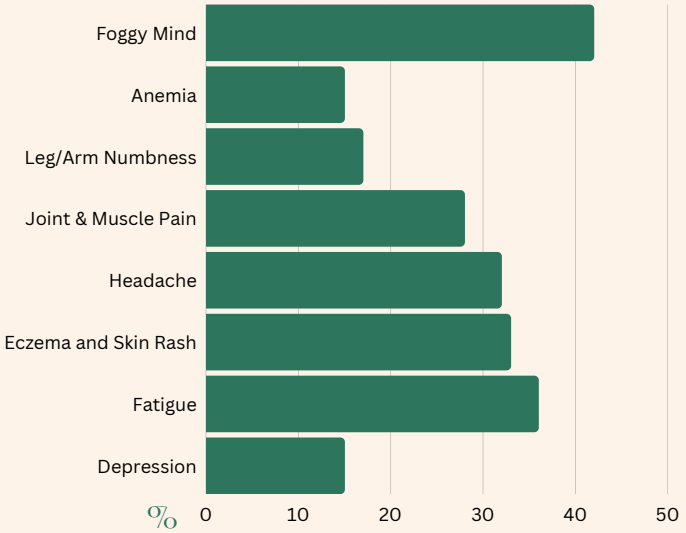
Response to a Gluten Free Diet

If you have these mutations, you should remove gluten from your diet (Czaja-Bulsa., 2015). Several studies have shown that 93.2% of non-celiac gluten sensitivity patients within the study, showed the disappearance of anti-gliadin antibodies of IgG class after 6 months of gluten-free diet (Caio, Volta, Tovoli, De Giorgio., 2014). Thus, their IgG levels return to normal after 6 months on a gluten-free diet and then increased again if gluten is reintroduced (Caio, Volta, Tovoli, De Giorgio., 2014).

Symptoms of a Gluten Sensitivity/Intolerance

People who are gluten intolerant often think that they will have gastrointestinal problems only. Gluten sensitivities do not only disturb the gastrointestinal tract, but also cause diseases of the skin, haematology, (blood), endocrinology (hormones), rheumatology, (joints), gynaecology, and dental health (Roszkowska et al. 2019).





Volta, U., De Giorgio, R. New understanding of gluten sensitivity. Nat Rev Gastroenterol Hepatol 9, 295–299 (2012). https://doi.org/10.1038/nrgastro.2012.15

Gluten

Lifestyle Tips

Some cereal grains, including wheat, barley, rye, and spelt, contain gluten, a large protein complex. The enzyme tissue transglutaminase enzymes (tTG) digest gluten in the intestine (Helmerhorst et al., 2020). The deaminated gliadin peptide is formed when this enzyme breaks down the large gluten molecule (Czaja-Bulsa., 2015).

Important Nutrients

Iron

If Hemoglobin and ferritin levels are low, research suggests about 8mg of iron for men and 10mg of iron for women can help replenish iron stores which you can achieve via the diet when working with your qualified Nutritionist. It is always recommended to undergo pathology screening prior to supplementing. You can find iron within red meat, eggs, green vegetables, dark leafy greens and legumes.

Folate

Research states that the ‘methyl’ form of folate is the most well absorbed form of folate. Folate is specifically important for fatigue. You can find folate within dark. leafy greens. Alternatively, your practitioner will advise you as to whether you require a methyl B vitamin supplement.

Vitamin B12

The amount of vitamin B12 you need is dependent on your age, genes and amount of acid within the stomach, since low stomach acid, impairs your ability to absorb vitamin B12. You can find vitamin B12 in eggs, shellfish, meat, and dairy.

Gluten

Important Nutrients

Vitamin D

Vitamin D is n essential nutrient for supporting the immune system, a priority for those with food sensitivities. A pathology test investigating your vitamin D levels is recommended if you do have food sensitivities. You can find vitamin D within egg yolk, mushrooms and salmon.

Zinc

Research suggests about 8-10mg of zinc are adequate for maintaining whole body sufficiency. It is important to check your zinc levels prior to supplementation and to always consume food if you do need to supplement. Zinc deficiency is common in the gluten sensitive population. Zinc is necessary to control inflammation, repair damaged tissues, support healthy immune response, and aid in the digestive process. You can find zinc in pumpkin seeds, sunflower seeds, liver, salmon, leafy greens.

Magnesium

Researchers are becoming increasingly aware that gluten can induce malabsorption of nutrients. For individuals with sensitivities, gluten can cause damage to intestinal cells can reduce the production of digestive enzymes that help break down foods and aid in nutrient absorption. Additionally, it can contribute to villous atrophy, leaky gut syndrome, and diarrhea. Magnesium plays an important role in keeping the immune system healthy, aiding in supporting mood and muscle health. You can find magnesium in cacao, leafy greens, nuts and seeds, avocado and banana.

Lactose

Lactose: Your Results

Lactose: Moderately Sensitive

Gene Tested	Your Profile
MCM6 - rs4988235	AG
MCM6 - rs182549	TT
DAO - rs10156191	TC
DAO - rs2268999	AA
DAO - rs2052129	GG
DAO - rs1049742	CC
DAO - rs1049793	CG

Conclusion Statement: People with similar genetic markers may have an increased risk of difficulty with digesting lactose

About Lactose Sensitivity: Lactose is a sugar found in animal-sourced milk and dairy products. Certain genetic markers may make it more likely to have difficulty digesting foods containing lactose.

Common Symptoms: Bloating, abdominal discomfort, gas, irregular bowel motions.

Lactose Sensitivity Explained

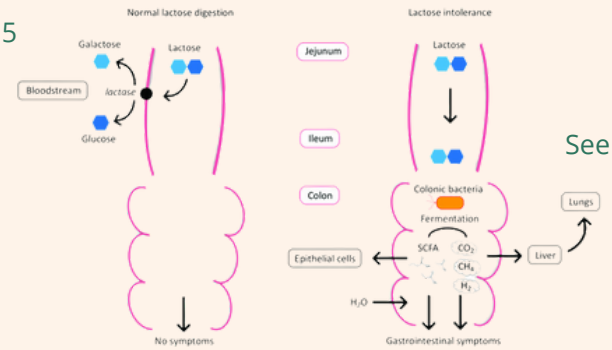
Lactase deficiency, also known as lactose intolerance, is the most widespread genetic deficiency syndrome in the adult population, affecting over 65 percent of people worldwide. Lactose intolerance occurs when an individual cannot effectively process lactose, a sugar present in all dairy products.

The ability to break down lactose in the presence of the lactase enzyme, known as lactase persistence, is believed to be connected to the domestication of dairy cattle over the past 10,000 years. Lactase persistence is an inherited dominant Mendelian trait. Approximately two-thirds of the global population experience a genetically predetermined reduction in lactase production after transitioning from maternal milk.

Among the four main dietary carbohydrates (lactose, fructose, sucrose, and starch), lactose is the sugar found in breast milk. Lactase, an enzyme located in the lining of the small intestine, plays a crucial role in breaking down lactose into its simpler components, glucose and galactose, facilitating their absorption into the bloodstream through the intestinal wall.

The undigested lactose moves from the small intestine to the colon, where it draws in substantial amounts of water through osmosis, often leading to diarrhea. Ultimately, the undigested lactose undergoes fermentation by colon bacteria, producing significant amounts of gas, including hydrogen, carbon dioxide, and the unpleasant-smelling methane gas. The diagram below illustrates this process.

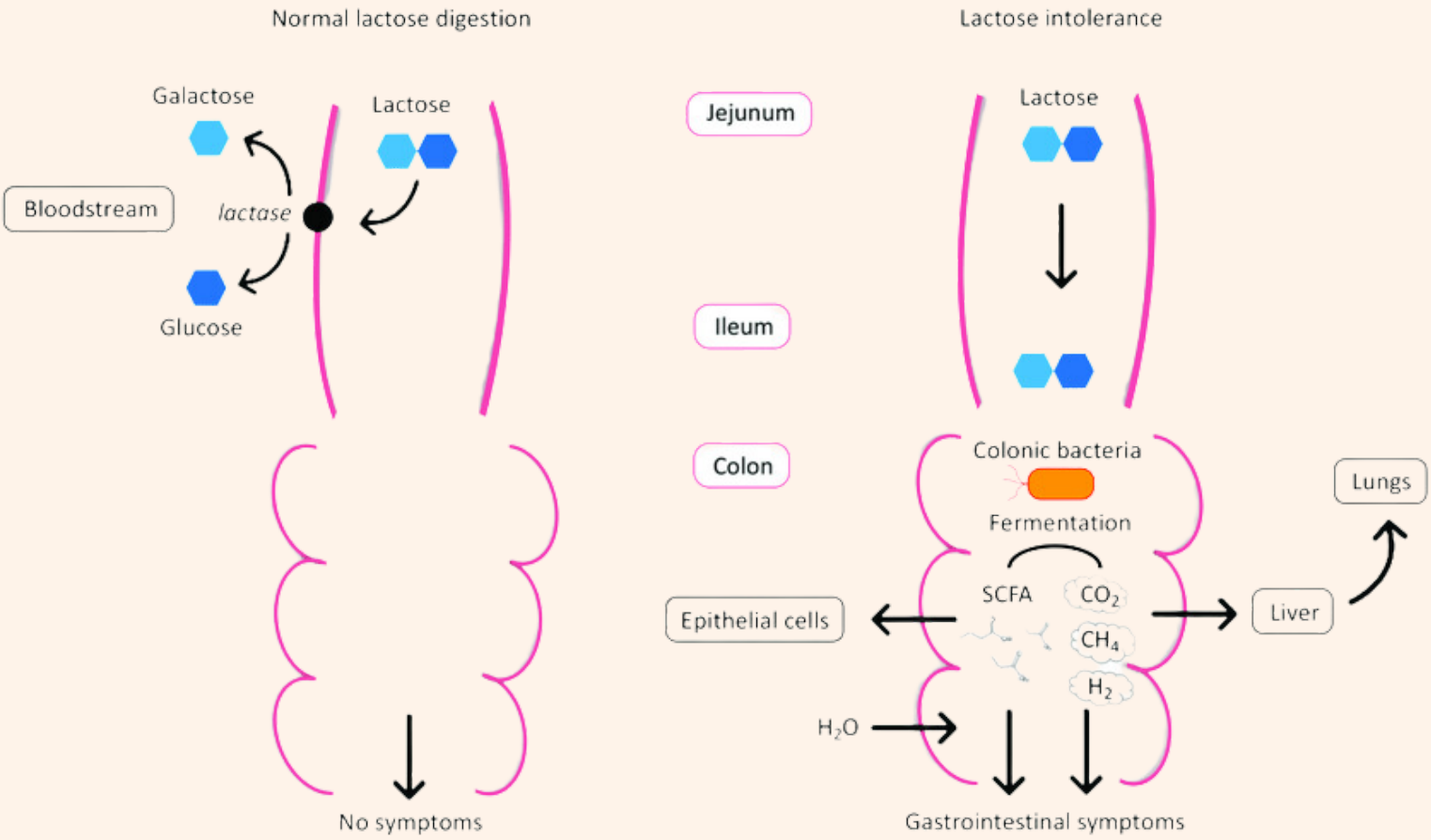
Deng, Misselwitz, Dai & Fox 2015



See diagram on following page...

Porzi, Millie & Burton-Pimentel, Kathryn & Walther, Barbara & Vergères, Guy. (2021).

Lactose Sensitivity Explained



Porzi, Millie & Burton-Pimentel, Kathryn & Walther, Barbara & Vergères, Guy. (2021).

Lactose

Diet Tips

Try Alternative Dairy Products

Use alternatives to cow milk such as nut, sheep and goat milk.

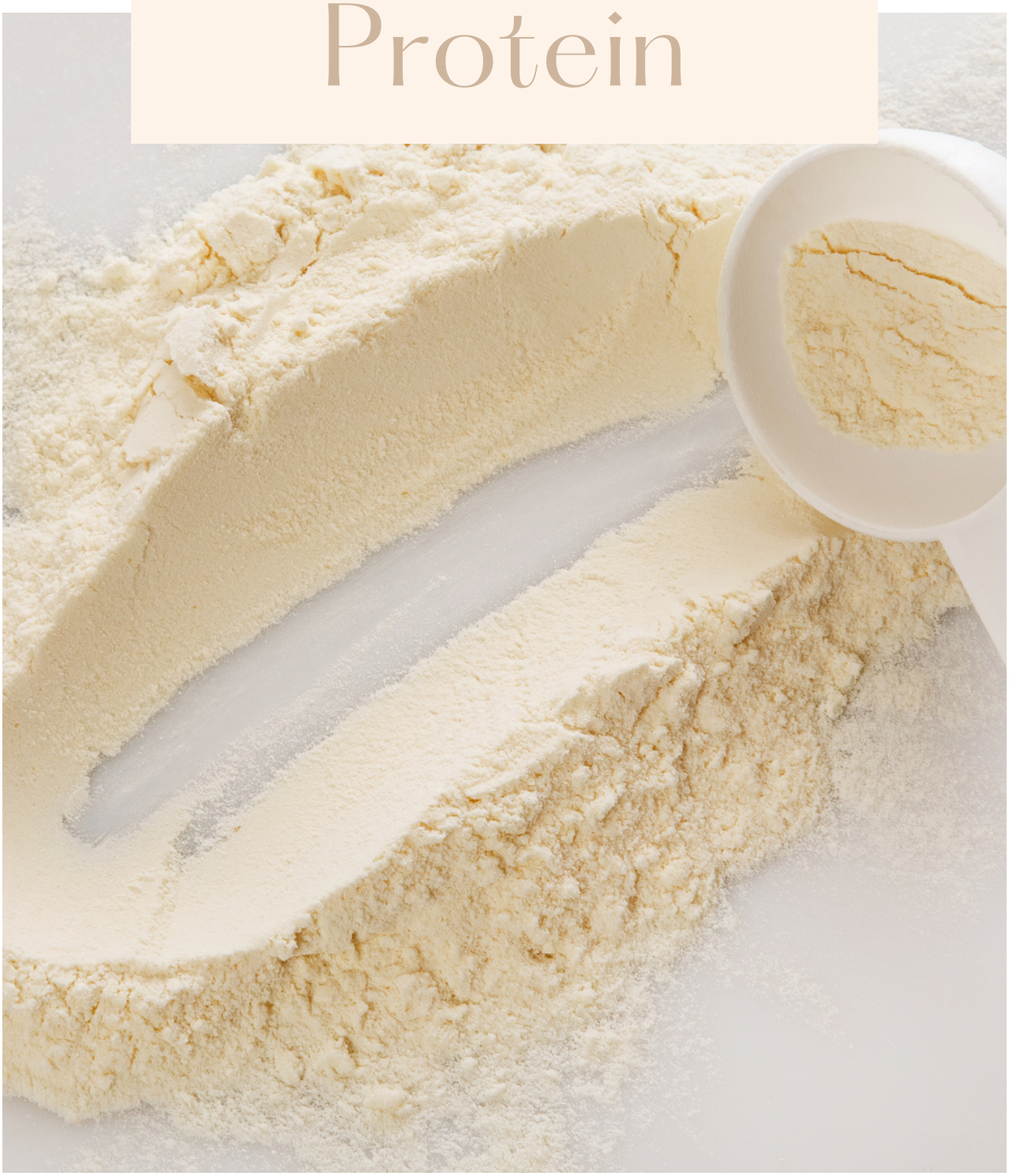
Try Aged Cheeses

Try eating ages cheeses, since they contain less lactose. A good way of determining how much lactose is in each cheese, is to check the amount of sugar on the nutrition label. If there is more than 2g of sugar, there is a greater amount of lactose.

Include Probiotic Sources

A lot of lactose-containing foods are a great source of probiotics. Please ensure you are still enjoying a wide variety of probiotic-rich foods that are also lactose-free. These foods include kimchi, kombucha, and sauerkraut as examples.

Cow Milk Protein



Cow Milk Protein: Your Results

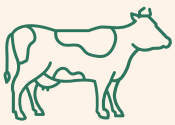
Cow Milk Protein: Moderately Sensitive

Gene Tested	Your Profile
IL-10 (A-1082G) - rs1800896	TC
HLA-DQ7 - rs4639334	GG

Conclusion Statement: People with similar genetic markers have an increased risk of sensitivity to cow milk protein (casein and whey).

About Cow Milk Protein Sensitivity: Milk and cow milk products are primarily made up of water, fat, lactose (milk sugar), minerals and protein. Sensitivity to milk protein (whey & casein) is one of the most common sensitivities seen in young children. The symptoms and outgrowing your symptoms will depend on your DNA result and intake of cow milk protein.

Common Symptoms: Skin irritation, nausea, congestion, abdominal pain, bloating, irregular bowels.



Cow Milk Protein Sensitivity Explained

Cow's milk protein intolerance (CMPI) is an abnormal immune system response to a protein present in cow's milk, leading to damage to the stomach and intestines. It's important to note that CMPI is distinct from lactose intolerance.

Factors that increase the risk of CMPI include having a family member, especially a first-degree relative like a sibling or parent, with a history of CMPI, atopic disease, or allergic disease. While breastfeeding can provide some protection against the development of CMPI in infants, it's worth noting that these proteins may still be present in breastmilk if the mother has consumed cow's milk herself.

CMPI can manifest in two forms: IgE-mediated and non-IgE mediated. Immunoglobulin E (IgE) is an antibody commonly associated with allergic diseases. In IgE-mediated CMPI, symptoms may appear as soon as 2 hours after consuming cow's milk, while in the non-IgE mediated form, symptoms can occur anywhere from 2 days to 1 week after cow's milk ingestion.

Henneman, et al., 2016

Cow Milk Protein

Diet Tips

Try Goat, Camel & Sheep Dairy Products

Research has found these milks are more easily tolerate by those with a ow milk sensitivity. (Gallier, Tolenaars & Prosser., 2020)

Try Alternative Dairy Products

Use alternatives to cow milk such as nut, sheep and goat milk.

Switch to Plant–Based Protein Powder

Whey and Casein protein powders are the isolated form of cow milk protein. These will cause the worst symptoms out of the other dairy products if you have a cow protein sensitivity. Instead, try vegan protein powders such as pea protein or brown rice proteins.

Include Probiotic Sources

A lot of cow milk-containing foods are a great source of probiotics. Please ensure you are still enjoying a wide variety of probiotic-rich foods that are also lactose-free. These foods include kimchi, kombucha, and sauerkraut as examples.

Egg

Egg: Your Results

Egg: Moderately Sensitive

Gene Tested	Your Profile
SERPINB7 - rs1243064	AT

Conclusion Statement: People with similar genetic markers have a risk of sensitivity to eggs.

About Egg Sensitivity: Egg sensitivity is very common. Many people are predominantly effected by the white part of the egg (albumen) more so than the yolk.

Common Symptoms: Runny nose, congestion, skin irritations, abdominal pain, bloating, irregular bowels.

Egg

Diet Tips

Consider Eliminating Eggs for 30 Days

This strategy may be a very effective way to increase tolerance. Try starting with just the yolks, then move on to the whole gg 1-2 times a week and monitor symptoms with your health professional.

Try Baking Eggs

Baked eggs are comparatively well tolerated and can be used to build egg-protein tolerance.

Try Egg Substitutes

Tofu: You can try scrambling silken tofu with spices such as turmeric to achieve a high protein alternative with a similar texture.

Gelatin: Dissolve 1Tbs of high quality pastured beef gelatin in 3 Tbs water for each egg in a recipe.

Chia seeds: Grind 1Tbs of chia seeds and mix with 3Tbs water. Let sit for 15 minutes and use the mixture as an egg substitute in baking.

Peanut

Peanut: Your Results

Peanut: Moderately Sensitive

Gene Tested	Your Profile
HLA-DQ region - rs4713479	CC
HLA-DQ region - rs2763982	GG
HLA-DQ region - rs9273440	TC
HLA-DQ region - rs9368704	GG
C11orf30 - rs7936434	GG
FLG - rs61816761	GG

Conclusion Statement: People with similar genetic markers have an increased risk of sensitivity to peanuts than other people.

About Peanut Sensitivity: Peanut sensitivity is very common. The sensitivity is considered heritable, which means it can get passed through generations. It is thought to be a combination of environment and genetics. Early exposure to peanuts has been shown to decrease the chances of developing sensitivities.

Common Symptoms: Skin irritation itchy mouth/throat, runny nose.

Peanut: What You Can Do

Diet Tips

Try Eliminating Peanuts

Replace food items such as peanut butter with almond butter and instead.

Read Labels Carefully

Many labels will state “peanut free” yet, the food may not come from an exclusively peanut-free preparation area or manufacturing plant. This can lead to tiny particles of peanuts coming in combat with your food which may trigger some inflammation within the digestive tract.

Try a Probiotic

Lactobacillus Rhamnosus is a probiotic strain that can help people improve peanut tolerance.

Lactobacillus Acidophilus is another strain that has helped to improve other types of food intolerance and might be helpful for peanut sensitivity. Studies are still inconclusive with this strain, as it has not been specifically studied in people with peanut sensitivities.

Pet Dander

Pet Dander: Your Results

Pet Dander: Less Sensitive

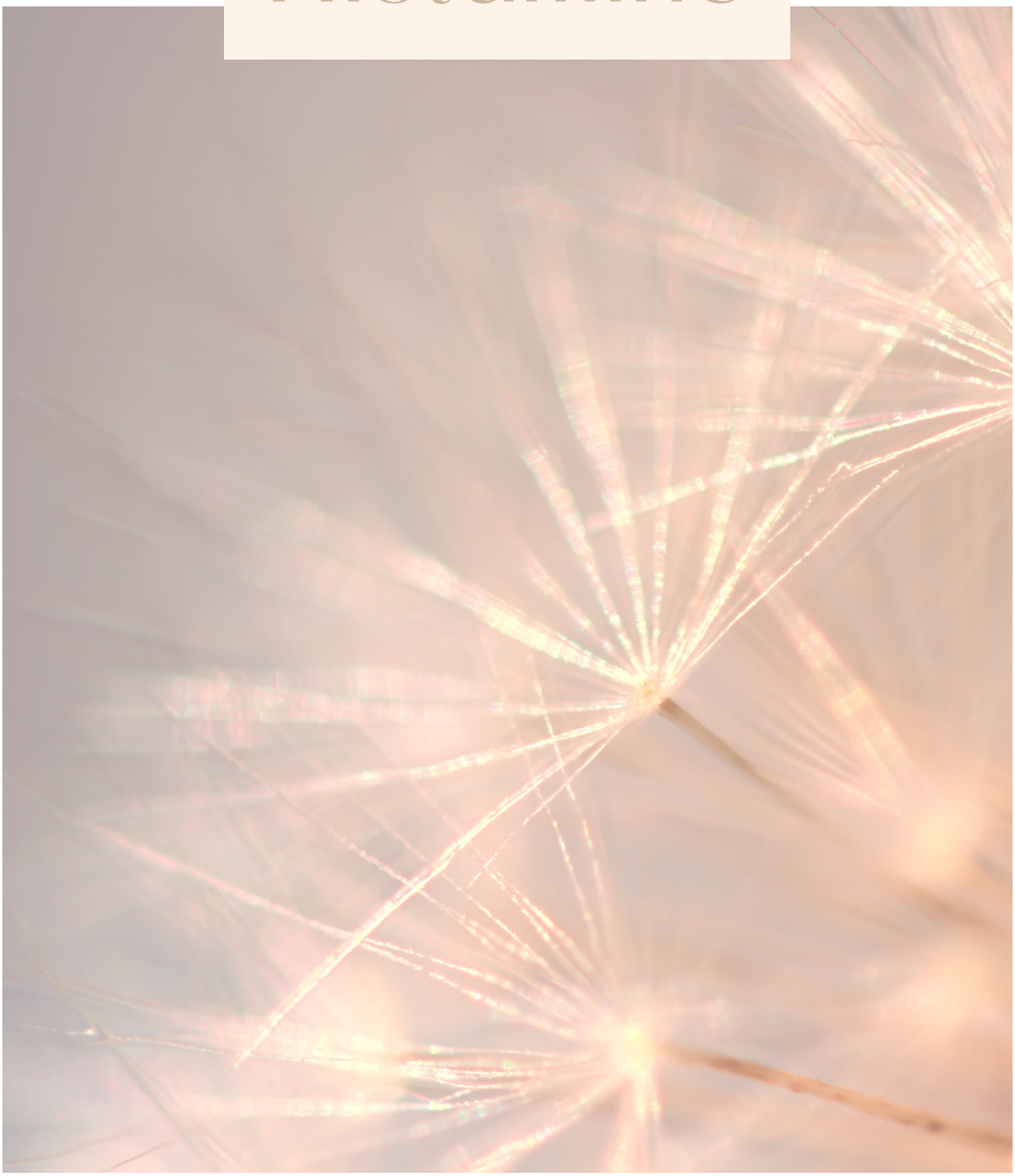
Gene Tested	Your Profile
HLA-DQ region - rs7775228	TT
HLA-DQ region - rs10189629	CC
HLA-DQ region - rs17533090	GG

Conclusion Statement: People with similar genetic markers have a lower risk of sensitivity to both cat and dog dander.

About Pet Dander Sensitivity: Pet dander consists of tiny particles of skin shed from animals that have hair, fur, or feathers. Certain genetic markers may make an individual more sensitive to contact with dander.

Common Symptoms: Throat irritation/coughing, itchy mouth, nose or eyes.

Histamine



Histamine: Your Results

Histamine: Sensitive

Gene Tested	Your Profile
DAO - rs10156191	TC
DAO - rs1049793	CG
DAO - rs2268999	AA
DAO - rs2052129	GG
DAO - rs1049742	CC
HNMT - rs1050891	AG

Conclusion Statement: People with similar genetic markers have an increased risk of sensitivity to histamine.

About Histamine Sensitivity: Histamine is a compound that may be found in aged and fermented foods as well as red wine. Histamine sensitivity is a condition where there is an imbalance in the body between too much histamine and an inability to breakdown histamine. Exposure to histamine comes in many forms, but the most common way is through certain foods and environmental irritants.

Common Symptoms: Headaches, red eyes, unexplained food sensitivities, swollen eyes, runny nose, skin irritation.

Histamine: What You Can Do

Diet Tips

Eat Lower Histamine Foods

High-histamine foods are often found in fermented edibles because bacteria produce histamine. Fermented foods include; alcohol, aged, cheeses, vinegar, and smoked meats. Other foods high in histamine are walnuts, cashews, and chocolate. Green and black tea might also contribute to symptoms of histamine sensitivity.

Reduce frying

Grilling or frying foods, especially meats, increases the amount of histamine in the food. In contrast, boiling helps keep the food's histamine neutral and can even lower the amount of histamine.

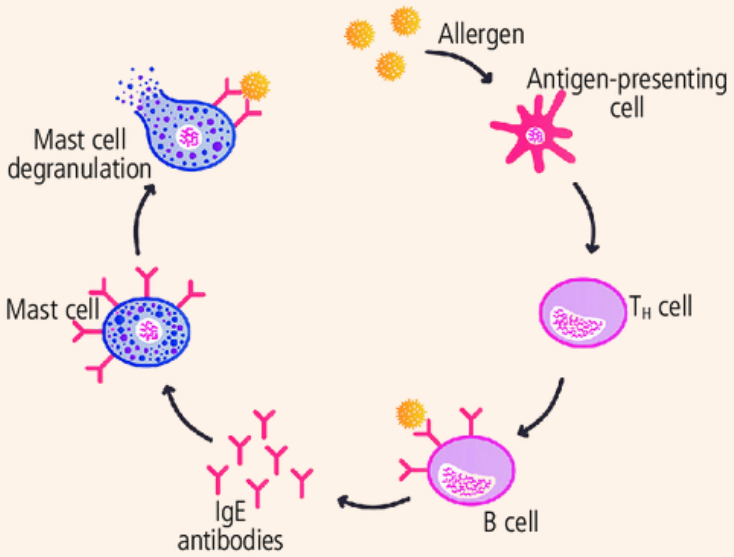
Histamine

Histamine intolerance stems from an imbalance between histamine accumulation and the body's ability to break it down. Histamine, a biogenic amine, is present in varying levels in many foods. In individuals without health issues, dietary histamine is rapidly metabolized by amine oxidases. However, individuals with reduced amine oxidase activity are at risk of histamine toxicity. The primary enzyme responsible for processing ingested histamine is diamine oxidase (DAO).

When histamine degradation is impaired due to decreased DAO activity, it leads to an excess of histamine in the body, resulting in a wide range of symptoms resembling allergic reactions. Consumption of histamine-rich foods, alcohol, or medications that release histamine or inhibit DAO can trigger symptoms like diarrhea, headaches, asthma, hives, and more in individuals with histamine intolerance. These symptoms can be managed with a histamine-free diet or eliminated with antihistamines.

Nevertheless, because of the complexity of these symptoms, histamine intolerance has often been underestimated. Further research, including double-blind, placebo-controlled trials, is needed. For individuals experiencing these symptoms without allergy or underlying medical conditions, histamine intolerance should be considered as a potential underlying cause.

Laura & Novak 2007,



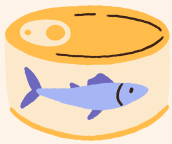
Histamine

Several factors could lead to reduced DAO activity or excessive histamine production, encompassing genetic mutations, alcohol consumption, specific medications, bacterial overgrowth in the intestines, and the consumption of substantial quantities of histamine-rich foods.

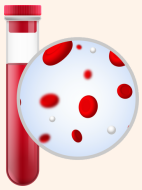
Histamine levels can also increase in aging, spoiling, or fermenting foods, and some foods and beverages either release histamine in the body or hinder the production and effectiveness of DAO and HNMT enzymes. Foods rich in histamine encompass items like alcohol, aged cheeses, pickled and fermented foods, smoked products, spinach, and certain condiments. Other foods may provoke histamine release or interfere with DAO and HNMT, including citrus fruits, chocolate, tomatoes, and fish.

For individuals adhering to a low-histamine diet, variety is essential to ensure adequate nutrition. Suitable options include fresh meats, fish, milk substitutes, cooked egg yolks, most fresh vegetables (excluding tomatoes and eggplants), and fresh fruits (except for citrus fruits, strawberries, and cherries), as well as fresh, pasteurized milk and dairy products.

Branco, et al., 2018



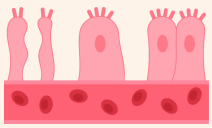
Foods



Nutrient Deficiencies

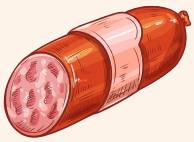
Gut Bacteria

Certain Medications



Leaky Gut Syndrome

High Histamine Foods

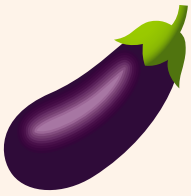

Deli Meat


Alcohol


Fermented foods

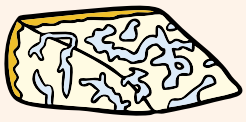

Dried fruit


Avocado


Eggplant

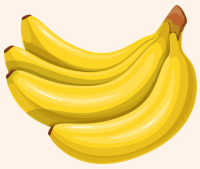

Spinach


Shellfish


Aged cheeses

Histamine Releasing Foods


Alcohol


Banana


Tomato


Wheat germ


Beans


Citrus fruits


Strawberries

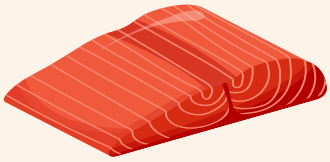

Pineapple


Mushroom

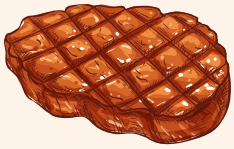

Nuts


Food Additives

Low Histamine Foods

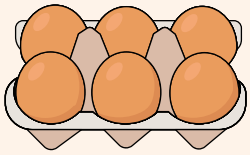


Fresh fish



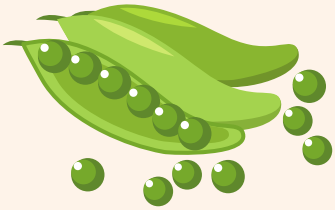
Fresh meats

Non-citrus fruits



Eggs

Non-dairy alternatives



Fresh vegetables
(besides avocado, tomato and spinach)

Olive oil

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Disclaimer

I, as a nutritionist, would like to clarify that this report is intended solely for informational purposes. It is a compilation of data obtained from your Food & Pet Sensitivity test by Home DNA, and the analysis presented is based on the genetic results generated by Home DNA. Please be aware that Glow by Elly does not purport to possess the expertise of a medical doctor, nor does it provide diagnoses for any diseases.

This report specifically focuses on the results of your genetic tests for sensitivities to gluten, cow milk protein, lactose, peanuts, eggs, histamine, and pet dander. It is important to note that the information contained in this report is derived from the genetic data provided by Home DNA, and references to journal articles have been used to support the content.

It is advisable to consult with your Glow by Elly practitioner, before making any decisions related to your dietary choices or health management based on the information presented herein.

Your health is a matter of utmost importance, and we encourage you to use this report as a resource to facilitate informed discussions with healthcare experts regarding your specific health needs and requirements.

Please be mindful that the information in this report is not exhaustive and may not encompass all aspects of your health.