



# Becoming Gluten-free

Become Educated and achieve Understanding of Gluten and the Chemical Processes it has on Human Metabolism, while still learning the Do's and Don'ts about which Foods to Eat

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WELCOME TO THE  
**BEAUTY IS NUTRITION**  
DISCOVER YOUR GREATEST SELF

# Dedication



💖 For my Mother Kathleen Sims. 💖

She was the wind beneath my wings, my heroine, and my strength,  
who helped me become who I am today.

“Jasmine, I love you, I love you, I love you.”





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# WHEAT OVER TIME



## History of Wheat

When becoming gluten-free, one wonders to themselves, “Why?” There are many reasons why from allergies, to sensitivities and diseases. All of which can be caused by gluten alone. Gluten is the culprit of many issues ranging from biological to chemical. Also gluten seems to bring people closer to death, sooner than expected, at a slow moderate pace. For this reason, people should opt out of gluten and decide to go gluten-free.

Becoming gluten-free has many benefits and many of them can be seen in just a few days. Getting gluten out of your life can clear up upset stomachs, reduce constipation, help clear up brain fog, reduce weight, and many other awesome things. It’s so easy to reap the benefits of becoming gluten-free and these benefits can be experienced in as little as 7 days. However, before getting rid of gluten, it would be wise to first find out why! So, let’s dive into history.

Wheat belongs to the grass family. (USDA, n.d.). The grass family has over 9,000 different species across the nations, including sugar cane and bamboo. (USDA, n.d.). There are six different classes of wheat: hard red winter, hard red spring, soft red winter, durum, hard white, and soft white wheat. (Encyclopedia, 2003). Plus, wheat grows on more land than any other food in the world. (Wiki, 2019).

Because wheat is so largely grown, it is the primary source of cereal, and China is the leading nation of cereal production and produced more than 400 million tons of wheat cereal in the year 1992. (He, Rajaram, & Huang, 2001). Also, wheat ranks second to being the largest produced cereal type in the world. This means maize (corn) is the most produced cereal on the market when not using wheat in products. (Wiki, 2019).

When thinking in terms of growing wheat, wheat traces back to a plant called Triticeae. Triticeae includes the varieties wheat, barley, rye, and other variety of grasses. (Encyclopedia, 2003).



This plant also dates as far back as 75,000 years ago when our ancestors used einkorn and emmer wheat varieties as a food source. (Encyclopedia, 2003). Moving forward in time, humans began to cultivate wheat around 9,000-10,000 years ago. (Encyclopedia, 2003). Also, women were responsible for gathering, preparing, and cooking wheat grains, while men spent most of their time hunting. (Encyclopedia, 2003). Over the centuries, wheat millers eventually began to notice that there were different species of wheat, and started to cross-link the different species to get superior varieties. (Encyclopedia, 2003).

Einkorn wheat is considered a diploid, which means its species contains two sets of chromosomes. (Yara, 2019). Humans then began to grow wheat species during the earlier times of cultivation selectively to widen their food sources. (Encyclopedia, 2003). After natural breeding with other wild species, wheat began to grow into a breed that had four sets of chromosomes. (Yara, 2019).

These specific kinds of wheat are called Durum and Triticum. (Yara, 2019). Other kinds of wheat like Spelt and Common bread are the products of another generation of breeding, in which they have six sets of chromosomes. (Yara, 2019). Additionally, in the year 1909, Marquis Wheat was the product of the first Dominion Experimental Farm. (Encyclopedia, 2003). Wheat is now being genetically modified and has up to 42 chromosomes. (Encyclopedia, 2003).

Since we learned to manipulate the genes of wheat, we learned we could grow more wheat in more considerable amounts. Wheat then began to be a source of alleviation for populations low in food. (Encyclopedia, 2003). World War 1 was one of these populations. (Encyclopedia, 2003). Shortly after World War 1 ended, wheat prices were guaranteed to be low due to the overproduction of its species. However, in the 1930's the stock market crashed causing what we know today as the great depression. (Wheat prices, n.d.).

Farmers could not afford to keep up with their crops because they were receiving less money than what their crops are worth. (Wheat prices, n.d.). Groups got together to try and find other solutions to solve the depression crisis and agricultural problems. (The Wheat Crisis, n.d.). Other countries like Britain objected. Afraid to deepen the depression by lowering prices, it was essential for the USSR to suggest higher prices. (The Wheat Crisis, n.d.).

# A Society of Wheat

Advances in wheat production streamlined across the centuries into every nation. Baking grew in popularity and nations began to invent different food types with wheat varieties. Noodles, cakes, donuts, biscuits, croissants, and even gravies streamlined the markets. (Encyclopedia, 2003). Wheat's used for many different types of foods, and the United States is the second-largest producer of wheat to meet the demands of the leading product on the market. (Encyclopedia, 2003).

Wheat affects people nutritionally if eaten as a whole grain, although most wheat products come from refined and processed grains, which strips the grain of its nutrients. (Whole grains Council, n.d.). In plants, there are three parts to whole grain. These parts are called the bran, the endosperm, and the germ (embryo). (Whole grains Council, n.d.). The bran contains some vitamins and fiber. (Whole grains Council, n.d.). The embryo contains some vitamins, fats, proteins, and minerals. Also, the embryo is the part of the plant that will grow into stems, leaves, and roots. (Whole grains Council, n.d.). The endosperm contains carbohydrates and proteins, and small amounts of vitamins and minerals. (Whole grains Council, n.d.).

The endosperm acts as a storage for food, and gluten is the primary storage form of protein. (Biesiekierski, 2017). During manufacturing, the grain is processed into flour. (Whole grains Council, n.d.). The embryo and the bran are stripped away, along with all their nutrients. (Whole grains Council, n.d.). This process leaves only the endosperm. The only things remaining are the carbohydrates and the gluten protein.

Gluten, the substance we all commonly know, is found in many foods we eat like cereals and grains. It is what adds shape to bread, cakes, and tortillas when baking; and holds the formation of these food items together. (Biesiekierski, 2017). This reason is that gluten is responsible for the elasticity of the dough. Without gluten things like cake, pie, donuts, bread, croissants, and muffins would not exist in their bound form. (Biesiekierski, 2017). While most people love eating these items, it is good to be to know if a food product does contain gluten.



People can tell if a product has gluten because when they eat it, it will feel soft like bread, or chewy and gooey like a tortilla. This reason is that gluten adds texture, moisture retention, and heat stability. (Biesiekierski, 2017). Food items without gluten are different. Food products without gluten are considered gluten-free. When eating them, they feel harder in texture, are often crumbly when we touch them, and most gluten-free food items cannot stay together for long. (Kneessi, 2109). Some people can tell by eating food products whether the product has gluten in it or not. Some people cannot tell. Others, whether they know the difference or not, prefer to know precisely which types of grains contain the gluten protein.

## Wheat and It's Nutritional Content

Besides the gluten protein, wheat has some nutritional content that can be beneficial. Out of 100 grams (g) of product, wheat yields 10.74g of water and gives the average human around 340kcal of energy. (NNDSSRR, 2019). The total amount of protein is 13.21g, and the carbohydrates total 71.97g; with starch content equaling 57.7g. (NNDSSRR, 2019). Wheat even has some fat, but very little equaling 2.5g. (NNDSSRR, 2019). The fiber content is low, yielding about 10.7g per 100g of the product. (NNDSSRR, 2019).

When discussing minerals, wheat is high in potassium and phosphorus, which is good for electrolyte balance and overall bone density. (NNDSSRR, 2019). From highest to lowest content, it also has magnesium, calcium, manganese, iron, zinc, sodium, copper, and selenium. (NNDSSRR, 2019). Furthermore, 100g of wheat also contains at least 1mcg of beta carotene and 1mcg of lutein+zeaxanthin, 4mg of proanthocyanidins, 3mg of vitamin E as alpha-tocopherol, and beta and gamma tocopherols as well. (NNDSSRR, 2019).

Believe it or not, there is a little vitamin K in wheat. (NNDSSRR, 2019). Although, wheat has mostly B vitamins favoring Niacin as vitamin B3, Pyridoxine as vitamin B6, Thiamin as B1, pantothenic Acid as B5, Riboflavin as B2, and Folate as vitamin B9. (NNDSSRR, 2019). However, these are minimal amounts compared to the number of minerals contained in 100 grams of wheat products. (NNDSSRR, 2019).

Although B vitamins are suitable for the human body, the number of B vitamins contained in this amount of wheat does very little compared to other sources that have B vitamins. (NDSRR, 2019). A person would have to consume 2 to 10 times 100g (2 x 100g up to 10 x 100g) of product, of this amount, to get the daily recommended amount of daily B vitamins, and this does not include all the B vitamins that are essential for the body to sustain optimal functioning. (Mahan & Raymond, 2017).

In order for the body to function optimally, the body needs B vitamins to make cellular energy. The electron transport chain (ETC) uses B1, B2, B3, B5 to produce energy. (Ross, Caballero, Cousins, Tucker, & Ziegler, 2014). There are 100g carbohydrates in a ½ cup of wheat flour or whole wheat grains. (NDSRR, 2019). Five cups of wheat flour would equate to the maximum (10 x 100g) amount of product to get the daily value. Usually, 1 ½ cups of flour are used for a typical cake. (Corriher, n.d.). Therefore, five cups of flour would be like eating three whole cakes in order to get our daily value, and that is an overabundance of carbohydrates that will put someone in a health crisis.

People can get their B vitamins from other sources. (Ross et al., 2014). Yeast is one of the highest sources for B vitamins. (Ross et al., 2014). White rice and yeast are excellent sources for thiamin (B1). (Ross et al., 2014). Brussels, yeast, and broccoli are also excellent sources for riboflavin (B2). (Ross et al., 2014). Coffee, nuts, and legumes are a good source of niacin (B3). (Ross et al., 2014). Broccoli, mushrooms, and potatoes are an excellent source for pantothenic acid (B5). (Ross et al., 2014). As well, plants, grains, and eggs are an excellent source for pyridoxine (B6). (Ross et al., 2014). Eggs, yeast, molds, and algae are excellent sources for biotin (B7). (Ross et al., 2014). Fruits and leafy greens are good sources of folate (B9). (Ross et al., 2014). Algae or meat are excellent sources for cobalamin (B12). (Ross et al., 2014). So, why eat wheat when people can get a wide variety of B vitamins to form all these other yummy sources and eat as much of them as we would like to eat?



# How to Recognize Gluten Containing Foods

Since recognizing gluten is not so easy, and gluten is found in many types of grains, knowing the types of grains that contain it is a good source of information. Wheat is the number one grain that contains gluten. It is loaded with gluten proteins. This text touched on previously that gluten is also in barley, rye, triticale, and other several other grains. (Medicine Plus, 2017). Recognizing gluten is often hard, and becoming educated on which products and foods have gluten is vital. A quick and easy way to know if a person is eating gluten is knowing the names of the grains that are out in the market.

Different types of grains with gluten are:

- Spelt
- Triticale
- Semolina
- Kamut
- Durum
- Wheat
- Rye
- Barley
- Couscous
- Bulgur
- Einkorn wheat
- Emmer wheat
- Farro
- Farina

It is essential to know that not all foods in grocery stores that are labeled "Gluten-Free" are gluten-free. (FDA, 2018). Although this is not entirely federally regulated yet, there are methods for figuring out how to tell if a product is truly gluten-free or fraudulent. (FDA, 2018). Any label with food in the above list and any label that says "bran germ" is considered to be a product that contains gluten. Also, any of these could be listed under the "ingredients" section on a food label. Meaning there is gluten in the product. Additionally, any food label that claims to have a gluten-free product should have a United States Department of Agriculture stamp on it. (FDA, 2018). Anything without the "USDA gluten-free" stamp is NOT legit. (FDA, 2018).

## What is Cross Contact?

Although a person can learn to identify and recognize gluten, other non-gluten-containing products can have gluten residue in them. (FDA, 2018). This process is called cross-contact. (FDA, 2018). Cross contact is when the particle of one thing rubs onto another thing, and its food particles mix. (FDA, 2018). This type of contact can happen in a restaurant, supermarket, or a manufacturing plant. (FDA, 2018). Food products like oats and other grains could have gluten particles on them if they get produced in the same factory. (FDA, 2018). Also, if eating out and a product with gluten is being made to order, and the surface is not sanitized and cleaned before making the next food product, gluten could transfer to that food. (FDA, 2018). These foods listed below are considered non-gluten-containing foods, but people should still do their research on where these foods are manufactured before purchasing them. As well, people should ensure that these foods are made safely during prepared food purchases.



The list is as follows:

- Oats
- Rice (brown, white, and wild)
- Indian Rice Grass
- Cornmeal, corn products
- Potato flakes
- Dried Beans
- Legumes
- Amaranth
- Arrowroot
- Millet
- Sorghum
- Quinoa
- Buckwheat
- Kasha
- Tef/teff

## **Foods NOT Allowed when Following a Gluten-free Diet**

Grains such as:

- Spelt
- Triticale
- Semolina
- Kamut
- Durum
- Wheat
- Rye
- Barley
- Couscous
- Bulgur
- Einkorn wheat
- Emmer wheat
- Farro
- Farina

**Gluten-free Foods with labels without the Federal Stamp and Other Products such as:**

- Wheat flour, self rising flour, graham flour, or enriched wheat flour
- Beer, ale, porter, or stout
- Processed foods often contain some gluten
- Croutons
- French fries
- Pasta
- Seasoned snack foods such as potato and tortilla chips or pretzels
- Pizza
- some seasoned rice mixes
- Gravies or thickeners regardless of drinking or using for food
- some salad dressings
- some sauces including some soy sauces
- Malt and malt flavorings
- Vegetables in certain sauces
- some soups or bouillon soup mixes
- Gluten stabilizer
- Teriyaki sauce
- Emulsifiers
- Bread or any baking products not made from home out of gluten-free products
- Matzo
- Cereals
- Cakes, pies, muffins, donuts, or any sweets associated with baking
- Candies or chocolate bars,
- Cookies or crackers



# Gluten-free Foods that ARE Allowed when Following a Gluten-free Diet

## Gluten-free Foods

- Raw fruits and veggies, meats, and grains
- Any fruit
- Any green leafy vegetables
- Any stalk, vine, nightshade or other vegetable
- Any kind Meat
- Any nut or seed that is NOT a gluten grain seed
- Rice (brown, white, and wild)
- homegrown fruits, vegetables, herbs, and seasonings
- Corn and some popcorns
- Potato
- Dried beans
- Legumes
- Any root vegetables like amaranth or arrowroot
- Acceptable grains that is NOT a gluten grain
- Millet
- Sorghum
- Quinoa
- Buckwheat/kasha
- Tef/teff
- Anything with a federally labeled gluten-free stamp
- Anything YOU make at home (homemade) or a company makes; as long as it is made of gluten FREE products and foods

### Gluten-free Flour Substitutes

- Amaranth
- Brown, white and wild rice
- Buckwheat
- Almond meal flour
- Coconut flour
- Corn
- Cornstarch
- Guar gum
- Millet
- Pea flour
- Potato flour
- Potatoes
- Quinoa
- Sorghum
- Soy flour
- Teff

# Wheat is an Addiction

Wheat is an addiction. When eaten, the gluten contained in wheat can be broken down into several morphine-like substances. (Pruimboom & De Punder, 2015). These substances are called exorphins. The opioid-like proteins result in the release of immune reaction, and researchers say this could be the onset cause for celiac. (Pruimboom et al., 2015). One of these particular opioid-like proteins is called gliadin morphin-7. (Pruimboom et al., 2015). Gliadin morphin-7 has seven amino acids in the chain. (Pruimboom et al., 2015). The morphine substance itself increases small intestinal transit time. (Pruimboom et al., 2015). Patients with celiac disease, who are affected by gluten, are known to have longer small bowel transit time. (Pruimboom et al., 2015). This reason may be why patients with autoimmune celiac disease, with proven inflammatory signs, do not suffer from pain, bloating, and other typical symptoms. (Pruimboom et al., 2015). Researchers feel that this reason is that substances present in gluten with opioid effects mask the deleterious effects, functioning as masking compounds of gastrointestinal symptoms. (Pruimboom et al., 2015). Furthermore, gluten exorphins also increase insulin production and release. (Pruimboom et al., 2015).

# GETTING IN TOUCH

## Wheat is Related to Obesity

Wheat is also related to obesity. (You & Henneberg, 2016). Cereals are said to help sustain weight, but in reality, obesity prevalence firmly associates with wheat availability. (You et al., 2016). The funny thing is, dietary guidelines influence the population to eat cereals and grains for health benefits, while they advocate healthy body weight management and reducing the risk of chronic disease. (You et al., 2016). Whole wheat products are rich in fiber, micronutrients, and minerals, and is shown to be beneficial. (You et al., 2016). Refined wheat products have been considered as desired food in the past due to its purity, but refined wheat contains practically only carbohydrates, which is less beneficial nutritionally. (You et al., 2016). Gluten proteins make up 80% of the content in cereals. (You et al., 2016). As well, wheat has a higher energy density than any other food staple. (You et al., 2016). Obesity prevalence is related to wheat availability and may contribute through the consumption of energy-dense, processed, and refined carbohydrates. (You et al., 2016).

## The Wheat Allergy

If food is cross-contacted, a person with a wheat allergy could suffer greatly. Wheat allergy is an allergic reaction caused by an IgE mediated immune response to a particular food. (Kneessi, 2019). This allergy is not the same as celiac or gluten sensitivity. (Kneessi, 2019). IgE means if a person has a wheat allergy, they will experience a life-threatening reaction such as anaphylactic shock.

Anaphylactic shock can result in the closing of the throat or tongue, swelling under the skin, hives, rashes, or even swelling of the eyes or face. A person with an IgE mediated allergy can also experience fainting, lightheadedness, low blood pressure, dizziness, difficulty breathing, rapid breathing, shortness of breath, nausea or vomiting, or mental confusion. If a person has a wheat allergy, they can eat any grain with or without gluten except wheat grains, and this must be avoided their whole life. (Kneessi, 2019). Essentially, a person with a wheat allergy does not have a gluten allergy. (Kneessi, 2019).

## Gluten Sensitivity

Food Sensitivity testing assesses IgG allergies. (Kneessi, 2019). Gluten sensitivity (food intolerance) is not an IgE mediated allergy. Gluten intolerance is when a person eats a particular food, such as gluten, and they feel a certain way afterward. Also, the gluten may cause an issue in the body after consuming for an extended period. People who are intolerant against gluten do NOT get life-threatening symptoms. If a person has gluten sensitivity, gluten should be avoided for at least six months. (Kneessi, 2019). If the gut can heal the person may be able to add it back in. (Kneessi, 2019). Sometimes with a food sensitivity such as gluten, the food cannot be added back in.

Symptoms of gluten sensitivity are:

- Headache
- Bloating
- Constipation
- Abdominal discomfort
- Diarrhea
- Food craving
- Fatigue
- Difficulty in concentration
- Mood Swings
- Hyperactivity
- Joint/Muscle pain

## Celiac Disease

In celiacs, the gut lining is attacked by the immune system during a chronic autoimmune attack due to the individual ingesting gluten. (Kneessi, 2019). People with celiacs cannot break down gluten. Gluten causes the gut barrier to break apart. (Visser, Rozing, Sapone, Lammers,& Fasano, 2009). People with celiac disease acquire a condition called intestinal permeability. (Kneessi, 2019).

Intestinal permeability is when the gut barrier breaks down so much that things ingested can pass through the lining of the gut wall. (Kneessi, 2019). Another name used for intestinal permeability is leaky gut. (Kneessi, 2019). When passing through the gut barrier, food particles can enter into the bloodstream; ultimately "leaking from the gut" to the blood. (Kneessi, 2019). Some of these particles are larger than usual.

When the large particles are in the bloodstream, the body does not understand what they are. This reason is that they are not supposed to be there. So the body thinks these large particles are invaders. Eventually, the gut continues to deteriorate as more gluten is consumed. (Visser et al., 2009).



Other diseases are also associated with gluten sensitivity and celiac disease, suggesting that gluten intake is related to the direct development of these conditions. (Pruimboom et al., 2015). These diseases include diabetes mellitus type 1, severe hypoglycemia in diabetes mellitus type 1, psoriasis, sleep apnea in children, neoplasia, atopic dermatitis, depression, subclinical synovitis in children, autism, schizophrenia, and irritable bowel syndrome (IBS). (Pruimboom et al., 2015). As well, according to the guidance for celiac disease screening issued in 2009, it is recommended to screen patients for celiac disease that suffer from diabetes mellitus type 1, IBS, thyroid hormone disturbances, Addison's disease, epilepsy, lymphoma, rickets, repetitive miscarriage, Sjögren's disease, and Turner disease. (Pruimboom et al., 2015).

## What are Tight Junctions?

The gut lining is like a fence that spreads across the gastrointestinal wall. Just like a fence, it has links that are tied together. These are called tight junctions. (Visser et al., 2009). Tight junctions are in place so that the fence or barrier does not break and things cannot get through that are not supposed to. When thinking of a fence, only things small enough to get the holes can pass. The purpose of the gut wall is to keep certain things out like pathogens, food particles, or bacteria; while letting in the smaller molecules like nutrients and other things that the body can utilize. (Kneessi, 2019).

## What is Zonulin and How Gluten affect your Body?

Since gluten is associated with leaky gut, it is good to understand what gluten does to the gut lining. Inside the gut lining where the tight junctions are located, there is a protein called zonulin. (Di Pierro, Lu, Uzzau, Wang, Margaretten, Pazzani, Maimone, et al., 2001). Zonulin is the particular protein produced by the body that keeps the gut lining permeable. (Visser et al., 2009). In other words, it keeps the fence links from breaking.

In people, who react to gluten, the interaction between the gliadin protein and the gut wall increases the release of the zonulin protein. (Visser et al., 2009). Gliadin is a class of proteins found in wheat. (Pruimboom et al., 2015). As zonulin is released, it is attracted to the wall where the gliadin is. (Nehra, Marietta, & Murray, 2014). Here it binds to the wall surface. (Nehra et al., 2014). As it binds, this process reduces resistance at the tight junctions. (Nehra et al., 2014).

Zonula occludens toxin (ZOT) is a chemical that is released by *Vibrio cholerae*. (Di Pierro et al., 2001). *Vibrio cholerae* is a bacteria in the gut. (Di Pierro et al., 2001). The resistance that occurs at the tight junctions when zonulin leaves is affected because of ZOT. (Di Pierro et al., 2001). How the resistance is affected is because ZOT and zonulin compete to bind to the same cell receptors.

These receptors are located at the tight junctions. (Di Pierro et al., 2001). Because zonulin competes with binding to the receptors, zonulin will usually keep ZOT from breaking down the tight junctions of the gut lining. (Di Pierro et al., 2001). As zonulin is released due to the constant ingestion of gliadin, to bind to the wall surface, it leaves tight junctions vulnerable. Consequently, there is a loss of ZOT interaction. (Visser et al., 2009). The ZOT chemical then begins to inflame the tight junctions. (Di Pierro et al., 2001).

As a person continues to eat gluten-containing foods, these chemicals are continuously released. The continual release of ZOT eventually causes tight junctions to loosen and break. This process results in a leakage of the lining. (Di Pierro et al., 2001). In other words, after lots of rain, the fence begins to corrode, and the links on the fence start breaking; allowing what is on the other side of the fence to enter. This process is also known as leaky gut. (Kneessi, 2019).



# How to Test for Celiac Disease Antibodies

When testing for Celiac disease, the practitioner is looking at specific types of elevated autoantibodies. Autoantibodies are antibodies sent out by the body's immune system to fight ongoing issues. Particularly in celiacs, the anti-tissue transglutaminase (anti-tTG) antibody, also known as the IgA marker, will be elevated.

Another antibody that will be elevated is the antiendomysial antibody (EMA). This antibody is known as another IgA marker or autoimmune (anti "self") marker. Also, the deaminated gliadin peptide (DGP), also known as the IgG and IgA markers or anti-gluten markers, will be elevated. (Pizzorno, Murray, & Joiner-Bey, 2016).

Practitioners can also combine HLA typing with EMA and DGP tests when testing for celiacs. They can also test for the gene types HLA DQ2, which is almost 100% found in celiac patients, as well as HLA DQ8. (Gaby, 2017). HLA stands for human leukocyte antigen. HLAs are gene encoders responsible for the regulation of the immune system.

People with celiacs have a significant level of HLA DQ2 complex and significant elevation of antibody types present in blood work. This high elevation of antibodies is due to all the large particles getting in through the stomach lining into the bloodstream.

Other diagnostic tools that can suggest celiacs disease are to:

- assess malnutrition
- test for iron-deficient anemia (which is common in most celiacs patients)
- test for micronutrient deficits (particularly Selenium, B9/B12, and Zinc), which point to gut lining destruction because the gut cant absorb it appropriately because it is inflamed from all the damage and focused on repairing itself
- test for lymphocytic enteritis
- asses for signs of diarrhea (which is common in celiacs patients); and
- test for osteoporosis

# How to Test for Gluten Sensitivity

Gluten sensitivity has similar leaky gut damage without the injury of the gut lining. However, symptoms are similar to that of celiacs. People who are gluten sensitive can also have the same vitamin and mineral deficiencies as people with celiacs. Therefore, using micronutrient testing is an excellent tool to assess micronutrient percentages. (Kneessi, 2019). Many individuals with gluten sensitivity will have the same elevated DGP IgG marker on their labs, but not IgA marker. (Pizzorno et al., 2016). Other sources that can help differentiate from celiac disease are using food sensitivity tests.

Examples of companies that offer gluten sensitivity tests are:

- ALCAT,
- Genova Diagnostics
- Doctors Data, and
- LabCorp

Sensitivity to gluten can cause other autoimmune diseases as well. So an excellent diagnostic tool would be to test for other elevated antibodies that are found in common autoimmune diseases. Additionally, constipation is common in those who have gluten sensitivity. (Gaby, 2017).

Most people who suffer from gluten sensitivity and celiac disease will have some form of gut issues. These people will have some extent of Hypochlorhydria (low stomach acid). Also, some will associate their symptoms with low pancreas enzymes or low bile acid production. These symptoms are due to gallbladder dysfunction. As well, some people often are diagnosed with other diseases such as thyroid disease, neurological disorders, liver issues, irritable bowel syndrome, or other gastrointestinal issues. (Gaby, 2017).



# Gluten-free Recipes

So what should we eat? Well if we have to have bread, then we should steer away from gluten products. However, there are other ways to enjoy our bread and pastries without having to worry. We use substitutes. The Asian culture is known for using rice flour to make their noodles. Even now, bakers are incorporating gluten-free yummys onto their menus, and the quick-service restaurant industry is redesigning their themes to benefit people with gluten (and dairy) sensitivities.

## Here are a few simple recipe ideas for those special yummys!

- Beef on a Wick or French Dip sandwich with gluten-free Bread
- Gluten-free chocolate or vanilla cupcakes
- Meat & vegetables are always gluten-free unless they have sauce (check the sauce)
- Soups without pasta, crackers, and bread
- Gluten-free crackers
- Gluten-free waffles
- Dosa crepes or pancakes are gluten-free East Indian cakes
- Gluten-free cinnamon rolls
- Gluten-free mac & cheese
- Salads are always gluten-free unless they contain croutons, bread, breaded meats, or dressing (check the sauce, meat, and side items)
- Gluten-free casseroles
- Gluten-free quesadilla and tacos made with corn tortillas or rice tortillas (burritos will break unless done correctly)
- Baked chicken without breading and gluten-free sauce
- Baked/grilled BBQ ribs with gluten-free sauce
- Almond flour breaded chicken tenders
- Side items are usually gluten-free unless they are a casserole type item like creamed spinach, or zucchini casserole, be sure to check with the chef about certain side items
- Lettuce wraps or unwiches
- Gluten-free cookies

# Shopping and Eating Out

Shopping for gluten-free products can be complicated and confusing. Companies market their products to influence buying decisions. Steps to ensuring people have organic, non-GMO ingredients that are healthy to eat are:

- Choose the right store- not every store has the same products, even if they are the same chain.
- Choose the right price- shop for your budget.
- Choose the right location- Some stores will be a good match, with the employee that clicks with you and help you through shopping, some stores do not; some stores are nearby, and some stores are not.
- Choose products that benefit your general health- just because someone else eats it and it does well with them does not mean you should eat it.
- Choosing the right products- be sure that the products you choose have the FDA regulation stamps and the gluten-free stamps on them.

Where do we eat? Eating out can be quite tricky. Although as stated before, more quick-service restaurants are trying to find ways to adapt to the newfound allergies and intolerances of the global population. With that in mind, what do we order? We order the same things we pick up when shopping. We ask for the chef or manager if the server is unable to accommodate us, and that is how we order. If people comment, it is most likely because they do not grasp the concept of how important it is to be in a state of health like being intolerant or sensitive to something like gluten. These people are most likely uneducated about the particular subject and will most likely try to talk you out of it, because of their belief systems. People can be as strong as they believe they are, and with knowledge and strength, we can avoid products with gluten in them regardless of where we choose to eat them.

So, are you ready to do this?! Can you stop eating gluten for just 7 days?

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