

Gluten: A boon or a bane? A review

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Abstract

Gluten is a protein found in grains like wheat, barley etc., and this provides flexibility due to which we can bind the flour; meaning if gluten is absent then the flour (dough) cannot be prepared. But this gluten sometimes causes problems for humans. When this protein is digested with the help of enzymes, not all gluten is digested, due to which the small intestine of the human being is damaged, causing the disease called celiac disease.

Keywords: A boon, a bane, Gluten, protein

Introduction

What is Gluten?

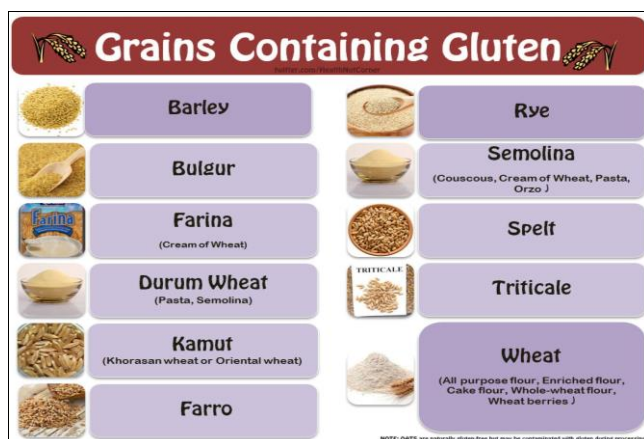
Gluten is a protein found only in grains, or it can be said that it is isolated from wheat flour. Generally, this gluten acts as glue responsible for flexibility. This gluten is responsible for the flour we prepare every day. Gluten is present in wheat, barley and rye. It acts as a binder, holding food together and adding “stretchy”. Gluten is also present in spelt, durum, emmer, semolina, farina, faro, graham, einkorn and triticale (a blend of wheat and rye). Less obvious sources of gluten include soy sauce and modified food starch.



Gluten containing grains

Gluten-Containing Grains and Their Derivatives is Wheat, Varieties and derivatives of wheat such as:

Wheat berries, durum, emmer, semolina, spelt, farina, faro, graham, KAMUT (Khorasan wheat), einkorn wheat, Rye, Barley, Triticale.



The malt is in various forms including malted barley flour, malted milk or milkshakes, malt extract, malt syrup, malt flavoring, and malt vinegar.

Many naturally gluten-free foods can be a part of a healthy diet: Fruits and vegetables, Beans, seeds, legumes and nuts in their natural, unprocessed forms, Eggs, Lean, non-processed meats, fish and poultry, and most low-fat dairy products.

Grains, starches or flours that can be part of a gluten-free diet include Amaranth, Arrowroot, Buckwheat, Corn — cornmeal, grits and polenta labelled gluten-free, Flax, Gluten-free flours — rice, soy, corn, potato and bean flours, Hominy (corn), Millet, Quinoa, Rice, including wild rice, Sorghum, Soy, Tapioca (cassava root).

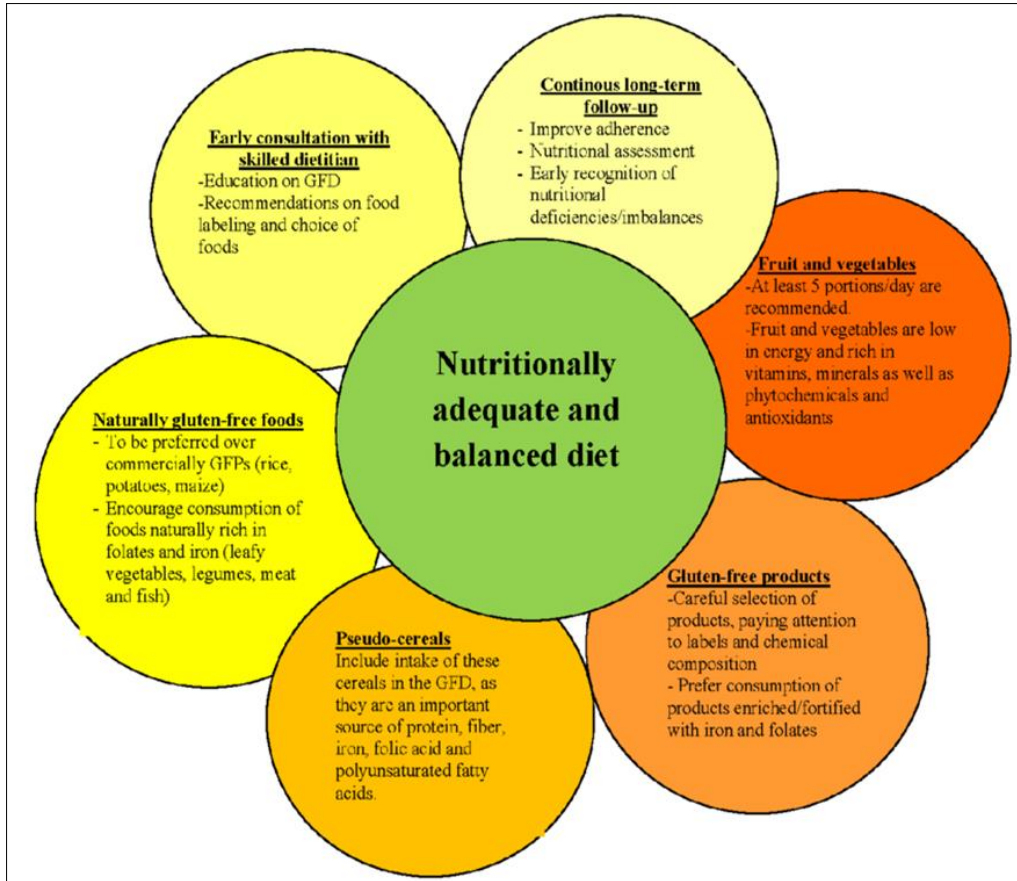
Gluten-Free Cereals	Gluten Containing Cereals
Cereals and minor cereals	
Corn	
Rice	
Sorghum	Wheat
Oats *	Barley
Teff	Rye
Millet	Kamut
Pseudo-cereals	Malt
Amaranth	Triticale
Quinoa	
Buckwheat	
Vegetable foods	Bread
Vegetables	Pasta
Fruits	Snacks
Nuts	Biscuits

There are different varieties of wheat, all of which contain

Wheat gluten: Durum, Einkorn, Emmer, Kamut, and Spelt Wheat flours have different names based on how the wheat is milled or the flour is processed. All of the following flours have gluten:

1. Enriched flour with added vitamins and minerals
2. Farina, milled wheat usually used in hot cereals
3. Graham flour, a course of whole-wheat flour
4. Self-rising flour, also called phosphate flour
5. Semolina, the part of milled wheat used in pasta and couscous

What Nutritionally Adequate and Balanced Diet Should Contain



Chemistry of Gluten

Although it comes from the starch-laden endosperm of some types of grains, gluten is actually a protein. It is activated when flour is mixed with water, and it's an essential component to any dough or batter. Gluten Provide structure and elasticity to dough, without it, baked goods and pasta's would fall apart.

Gluten is a complex mixture of hundreds of related but distinct proteins, mainly gliadin and glutenin. Similar storage proteins exist as secalin in rye, hordein in barley, and avenins in oats and are collectively referred to as "gluten."

Gluten: A Bane or Boon for Human Body

Humans have digestive enzymes that help us break down food. Protease is the enzyme that helps our body process proteins, but it can't completely break down gluten. Undigested gluten makes its way to the small intestine. Most people can handle the undigested gluten with no problems. But in some people, gluten can trigger a severe autoimmune response or other unpleasant symptoms.

Celiac Disease: An autoimmune response to gluten is called celiac disease. Celiac can damage small intestine. Some people who don't have celiac disease still seem to feel sick after eating foods that contain gluten.

Common Nutrient Deficiencies in Subjects with Celiac Disease			
At Diagnosis	GFD	GFD Products	Long-Term GFD
Calorie/protein			
Fiber	Fiber	Fiber	Fiber
Iron	Iron	Iron	
Calcium	Calcium		
Vitamin D	Vitamin D		
Magnesium	Magnesium		
Zinc			
Folate, niacin, vitamin B12	Folate, niacin, vitamin B12	Folate, niacin, vitamin B12	Folate, niacin, vitamin B12
Riboflavin	Riboflavin	Riboflavin	Riboflavin

Common nutrient deficiencies in adults with celiac disease (CD) at diagnosis and after Gluten-free diet (GFD).

They may experience bloating, diarrhea, headaches or skin rashes.

Irritable Bowel Moment

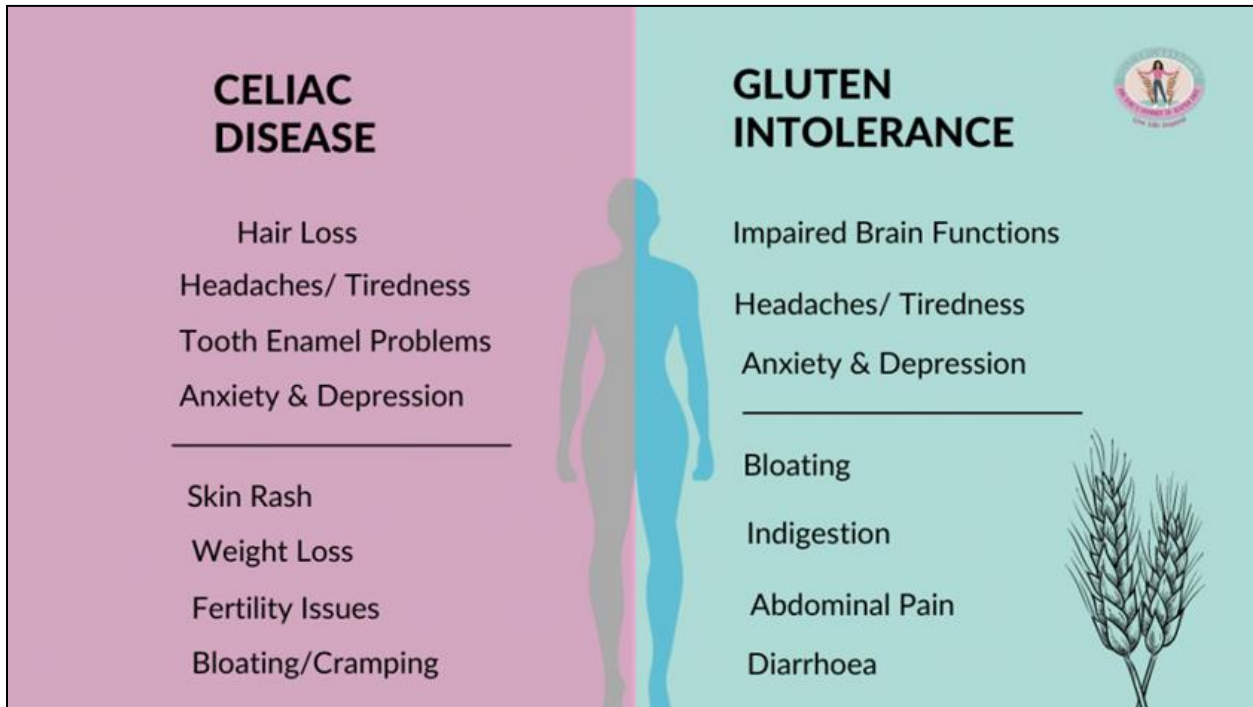
People who have gluten sensitivity may develop symptoms hours or days after consuming gluten, such as: Abdominal pain, Bloating, Diarrhea or constipation, Headache, Fatigue.

Non Celiac gluten insensitivity (Gluten Intolerance)

It is a gastrointestinal irritation caused by gluten in people who don't have celiac disease.

Difference between celiac disease and gluten Intolerance

There's a lot of confusion about gluten being an evil food. Gluten isn't inherently bad for most people. We, as humans, have consumed gluten for as long as people have been making bread. For centuries, foods with gluten have been providing people with protein, soluble fiber and nutrients. Gluten in itself, especially gluten found in whole grains, is not bad for healthy people whose bodies can tolerate it.

**Conclusion**

Gluten is a protein found naturally in some grains, which has been consumed since ages by human beings, making it a boon. Although, nowadays some people have developed certain diseases like celiac disease, gluten intolerance, irritable bowel movement, making it a bane.

Hence, it can be concluded that gluten is a bane & boon.

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