

Let's Talk About: *Wheat Gluten*

Wheat has served as a major food source for humans for thousands of years. Today, several billion people depend on wheat for a substantial part of their diet, and wheat remains one of the 'big three' cereal crops around the world.

Gluten is a protein found in wheat and many other grains including rye and barley. It is a key ingredient in most breads, cereals, pastas, and processed foods because it acts as the binding agent in baked goods, creating the lighter and less crumbly texture consumers enjoy.^{1,2}

In recent years, consumer concerns over potential health problems caused by eating foods containing gluten have grown. Fortunately, a majority of people concerned about wheat gluten have nothing to worry about. A rare medical condition known as celiac disease is the only gluten-related disorder that requires a strict gluten-free diet. Nevertheless, gluten-free diets are a 'fad' because many consumers believe it leads to weight loss and healthier bodies. However, research shows that not all people should jump on this diet so quickly, which will be discussed in more detail later.

Gluten Intolerance vs. Wheat Allergy vs. Wheat Intolerance

	What is it?	How many does it effect?
Celiac Disease/ Gluten Intolerance/ Gluten Hypersensitivity	An autoimmune disorder where the body is unable to effectively digest gluten, causing damage to the lining of the small intestine. ³ Over time, the damage can prevent nutrients from being absorbed during digestion. ⁴	Celiac disease only affects 1 in every 1000 people; therefore, concern about gluten is impractical for most people. ⁵ Over time, it has become a disease that affects adults more than children. ⁶
Wheat Allergy	The same as any other food allergy, where the person develops sneezing, itching, watery eyes, and other common symptoms when wheat is consumed. ⁷	Although food allergies affect 1.5 percent of the population, wheat allergies affect less than one percent of the population. ⁸
Wheat Intolerance	Wheat intolerance does not have a proper diagnosis, but occurs from discomfort from over-eating breads and pastas. ⁹	Because it is difficult to diagnose, doctors are unsure how many people are actually wheat intolerant. However, many dieticians find that it has become "fashionable" to blame wheat for many digestive issues. ¹⁰



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Dispelling Myths about Wheat

Myth #1: The increase in celiac disease is due to wheat breeding.

- Celiac disease increased over the past 50 years, as have other autoimmune diseases and allergies. The relationship between celiac disease and wheat was not clearly established until the late 1940s.¹¹ Research continues on why the incidence of celiac disease is increasing. Meanwhile, gluten-free diets are appropriate for that small subset of the population that suffers from celiac disease, has been diagnosed gluten sensitive, or suffers from wheat allergies.

Myth #2: The increase in celiac disease is due ONLY to modern wheat.

- While there is a possibility that modern wheat strains play a part in growing autoimmune disorders, there are many other options being studied:
 - Immunization campaigns beginning in the 1950's
 - Breastfeeding's effect on how the body's immune system responds to antigens
 - The impact of chemicals or other environmental factors that weaken the intestinal immune system
 - Increased consumption of processed food.
 - Increased use of antibiotics changing microbiota in the intestine and altering immune functions towards food intolerance¹²

Myth #3: Wheat has been genetically modified.

- Today's wheat is the product of the process of crossing parents and selecting offspring, a process called conventional breeding.
- That process leads to selection of traits that improve yield, increase resistance to diseases or improve baking characteristics.
- No commercially-available wheat varieties today are genetically engineered with genes from unrelated species.¹³

Myth #4: Gluten-free diets are good for weight reduction or maintenance.

- Gluten-free foods are typically more expensive and often higher in calories, which may lead to weight gain.
- Other grains, not containing gluten, have no caloric advantage over wheat; carbohydrates and proteins each have 4 calories per gram.¹⁴
- Nutrition consultant Heather Mangieri said it best, "There's nothing magical about eliminating gluten that results in weight loss. Any of us that eliminates or removes cookies and candies from our diets, and replaces them with fruits and vegetables is going to feel better."¹⁵ The key to a healthy diet that still remains true is everything should be consumed in moderation. A mix of too many calories and too little exercise will result decreased bodily function, that includes a compromised immune system.

Myth #5: Many, many people have allergies and intolerances to gluten.

- Very few people (<1%) have celiac disease.
- A small number (.5-6%) have non-celiac gluten sensitivity.
- A very small number of Americans (<.5%) have wheat allergies.¹⁶

Gluten-Free Does Not Mean "Healthier"

- Avoiding gluten, for those without an intolerance means eliminating an important, widely available set of foods, including bread, pasta and many cereals.

- Foods that are gluten-free are typically higher in fat, sugar and calories. They typically have higher glycemic index because they contain less fiber, resulting in rapid absorption of glucose. Foods that are lower in fiber may result in constipation, gut and other health issues, and increased risk of cancer. Also, these foods are typically lower in B-vitamins, folate, and iron because most are not enriched or fortified.¹⁷
- Nutrient deficiencies may result from the elimination of a food group with dietary nutrients.

If You Think You Have Celiac Disease or Gluten Sensitivity

Get tested FIRST to rule out celiac disease. There is currently no test for non-celiac gluten sensitivity. If you have digestive health issues (IBS, Crohn’s disease, etc.) a low FODMAP {Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols (carbohydrates in fruits, vegetables, grains, dairy and legumes)} diet may be warranted, and is best supervised by a registered dietician.¹⁸

If you have a Wheat Allergy or are Gluten Intolerant:

Read the label to ensure you will not be consuming wheat products. U.S law requires that all major food allergens be listed on the product label. If you are unsure of what to avoid, refer to www.foodallergy.org for a list of items.

Heart Healthy

For those without celiac disease, wheat allergies, or anyone who wants to eat healthier: choose whole grain over refined grains. Whole grains are the entire grain. Refined grains are just the endosperm with the bran and germ removed, while refined grain removes some of the beneficial nutrients found in whole grains, including dietary fiber. Dietary fiber has a many beneficial effects: improved blood cholesterol and lowered risk of associated diseases such as heart disease, stroke, and type two diabetes. Fiber helps increase the feeling of fullness, which helps with weight management.¹⁹ To find these items look for the words “whole grain”, on the ingredient list or check for a *Whole Grain Council* stamp on the package. It is also important to remember that just because an item is darker in color does not mean that it is whole grain! Whole wheat bread contains about 3-4 grams worth of dietary fiber per serving, the ingredient list can help detect fiber content.²⁰

Here is a list of whole grain items that should appear first on the ingredient list:²¹

✓ Whole wheat	✓ Graham flour
✓ Whole oats	✓ Brown rice
✓ Wild rice	✓ Whole-grain corn
✓ Popcorn	✓ Whole-grain barley
✓ Whole-wheat bulgur	✓ Whole rye

Conclusion

There is no scientifically proven reason to eliminate gluten from the diet other than to alleviate symptoms from celiac disease. There is no study that points to a gluten-free diet as a means of weight reduction or weight maintenance.¹⁰

¹ "Why is Wheat Gluten Disorder on the Rise?" *Mercola*. 9 July 2009. Web. 5 August 2013.

² "Science of Bread: Great Balls of Gluten Activity." *Exploratorium*. Web. 9 August 2016.

³ Coleman, Naomi. "Wheat Intolerance: the Facts." *DailyMail*. Web. 5 August 2013.

⁴ Jaret, Peter. "The Truth About Gluten." *WebMD*. 2 March 2011. Web. 14 June 2016.

⁵ Coleman, Naomi. "Wheat Intolerance: the Facts." *DailyMail*. Web. 5 August 2013.

⁶ Lorgetil and Salen. 2014. "Gluten and wheat intolerance today: are modern wheat strains involved?" *Food Sciences and Nutrition* 65(5): 577-581. Retrieved 14 June 2016.

⁷ Coleman, Naomi. "Wheat Intolerance: the Facts." *DailyMail*. Web. 5 August 2013.

⁸ Coleman, Naomi. "Wheat Intolerance: the Facts." *DailyMail*. Web. 5 August 2013.

⁹ Coleman, Naomi. "Wheat Intolerance: the Facts." *DailyMail*. Web. 5 August 2013.

¹⁰ Coleman, Naomi. "Wheat Intolerance: the Facts." *DailyMail*. Web. 5 August 2013.

¹¹ Shewry, P.R. (2009). "Wheat." *Journal of Experimental Botany* 60:(1537-1553). doi:10.1093/jxb/erp058

¹² Lorgetil and Salen. 2014. "Gluten and wheat intolerance today: are modern wheat strains involved?" *Food Sciences and Nutrition* 65(5): 577-581. Retrieved 14 June 2016.

¹³ *The National Wheat Improvement Committee (NWIC)*. "Wheat Improvement: The Truth Unveiled." 3 April 2013. Web. 1 June 2016.

¹⁴ *Wheat Foods Council*. "Gluten and the Diet." 2009. Web. 1 June 2016.

<http://www.wheatworld.org/wp-content/uploads/about-wheat-foods-gluten-fact-sheet-2009.pdf>

¹⁵ Rettner and MyHealthNewsDaily. 11 March 2013. "Most People Shouldn't Eat Gluten-Free." *Scientific American*. Retrieved 14 June 2016.

¹⁶ 11Chafen JJ, Newberry SJ, Reidl MA, et al. Diagnosing and managing common food allergies: a systematic review. *JAMA*. 12 May 2010. Web. 1 June 2016.

<http://wheatfoods.org/sites/default/files/attachments/wheat-gluten-and-health-pdf.pdf>

¹⁷ *Wheat Foods Council*. "Wheat, Gluten and Health." 2015. Web. 1 June 2016.

<http://wheatfoods.org/sites/default/files/attachments/wheat-gluten-and-health-pdf.pdf>

¹⁸ *Wheat Foods Council*. "Wheat, Gluten and Health." 2015. Web. 1 June 2016.

<http://wheatfoods.org/sites/default/files/attachments/wheat-gluten-and-health-pdf.pdf>

¹⁹ "Whole Grains and Fiber." *American Heart Association*. 6 August 2015. Retrieved 1 June 2016.

²⁰ "Nutrition Facts: Whole Grains". *Minnesota Department of Health*. 8 October 2014. Retrieved 1 June 2016.

²¹ "Whole Grains and Fiber." *American Heart Association*. 6 August 2015. Retrieved 1 June 2016.