

Wheat, Gluten and Health



Wheat: The Latest Dietary “Villain”

- Close to 30% of US adults* are interested in cutting down or avoiding gluten in their diets.
- And, most are not doing so out of medical necessity....
- Is gluten or wheat really the cause of all the obesity and illness it is accused of?

**NPD Group/Dieting Monitor, 52 week data year ending January 30, 2013*

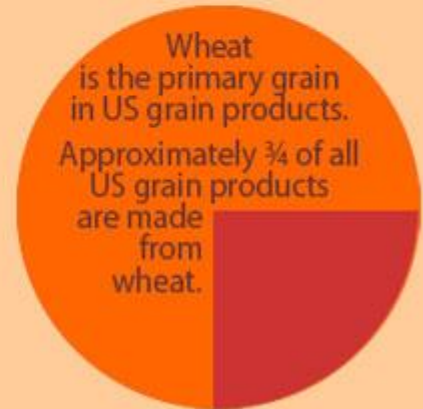


Wheat Facts



Wheat has been consumed by humans for at least 17,000 years and cultivated for the last 10,000

Currently, Americans consume about 134.4 lbs. of wheat flour each year (USDA 2012)



Six Classes of Wheat



Hard Red Winter

Versatile, with excellent milling and baking characteristics for pan bread, Hard Red Winter is also a choice wheat for Asian noodles, hard rolls, flat breads, general purpose flour and cereal.



Hard Red Spring

The aristocrat of wheat when it comes to "designer" wheat foods like hearth breads, rolls, croissants, bagels and pizza crust, Hard Red Spring is also a valued improver in flour blends.



Soft Red Winter

A versatile weak-gluten wheat with excellent milling and baking characteristics, Soft Red Winter is suited for cookies, crackers, pretzels, pastries and flat breads.



Soft White

A low moisture wheat with high extraction rates, providing a whiter product for exquisite cakes, pastries and Asian-style noodles, Soft White is also ideally suited to Middle Eastern flat breads.



Hard White

The newest class of U.S. wheat, Hard White receives enthusiastic reviews when used for Asian noodles, whole wheat or high extraction applications, pan breads and flat breads.



Durum

The hardest of all wheats, Durum has a rich amber color and high gluten content, ideal for pasta, couscous and some Mediterranean breads.

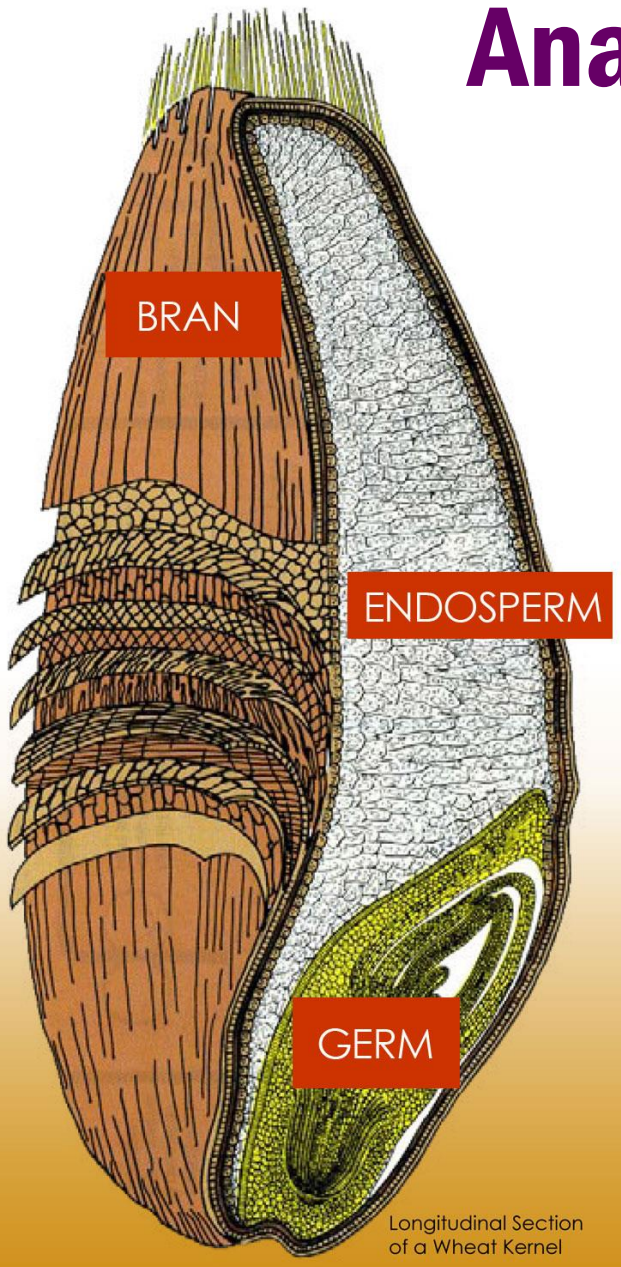


Anatomy of a Wheat Kernel

The Kernel of Wheat

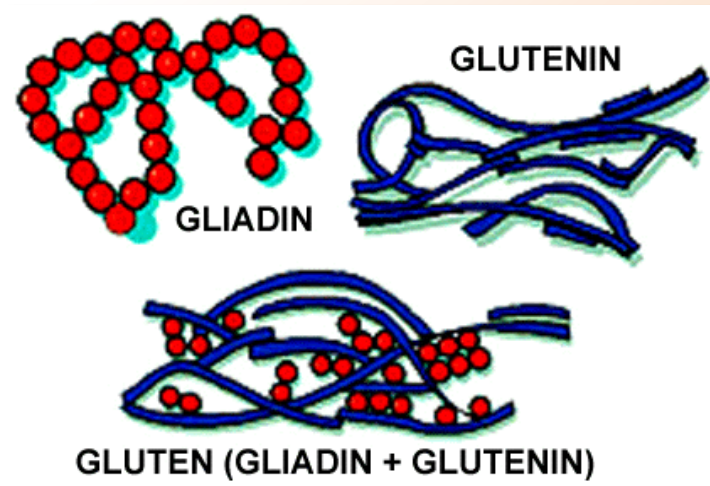
Sometimes called the wheat berry, the kernel is the seed from which the wheat plant grows.

- Endosperm
- Bran
- Germ



What is Gluten?

Gluten is a matrix formed by the proteins gliadin and glutenin



glu·ten

/ˈglōtn/ noun

1. a substance present in cereal grains, especially wheat, that is responsible for the elastic texture of dough. A mixture of two proteins, it causes illness in people with celiac disease.

Gluten in the Food Supply

- Wheat is the primary source of gluten in the US food supply
 - Breads, pasta, tortillas, crackers, cookies, cakes, etc.
- Other foods that contain gluten include:
 - Beer, ale, lager
 - Couscous, bulgur, farina
 - “Malt” or “malted” foods: malt extract, malt vinegar (used in some pickles), malted milk, etc.
 - Other sources: seasonings, broths, soy sauce, sausage, hot dogs, deli meats, candies, and some medications

Wheat & Gluten: What's All the Fuss?

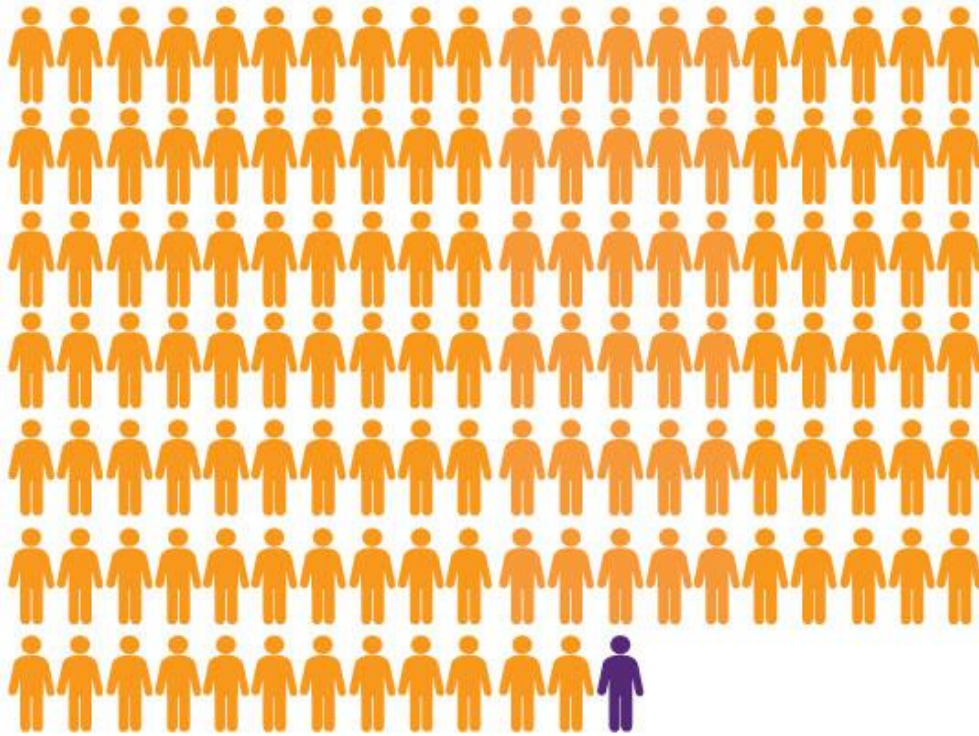
Claims

- People can't tolerate wheat and gluten; we don't have the enzymes to ingest wheat
- Many, many people have allergies and intolerances to gluten
- Going gluten-free will cure most modern day illnesses

Facts

- Vast majority (>93%) can consume wheat and gluten
- A few people have wheat allergies, gluten intolerances (0.5-6%)
- Obesity, diabetes, and heart disease are caused by a variety of factors and not a single food or food type

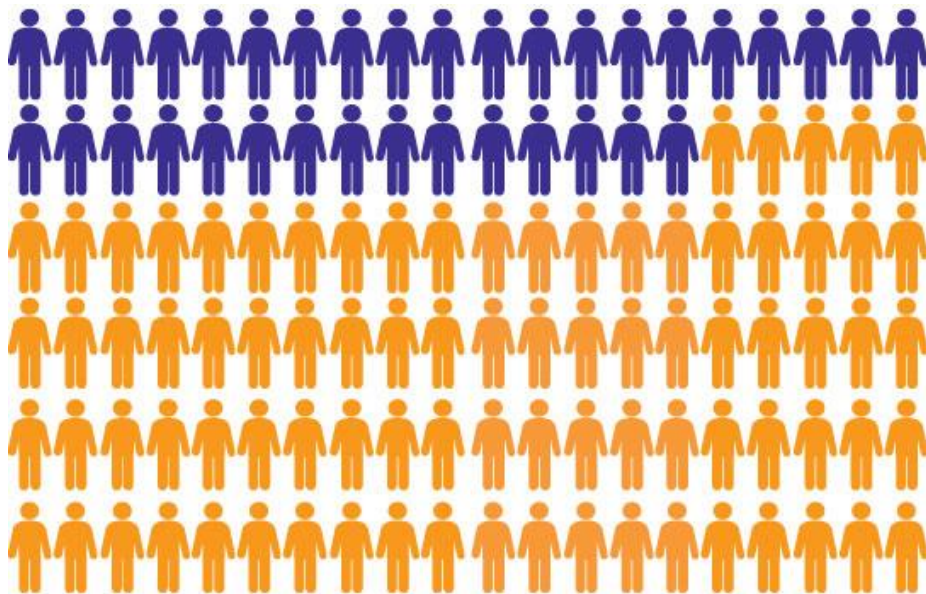
Celiac Disease, Gluten Intolerance and Wheat Allergy



- Very few people (1:141 or <1%) have celiac disease
- A small number (.5-6%) have non-celiac gluten sensitivity
- A very small number of Americans (<.5%) have wheat allergies

Chafen JJ, Newberry SJ, Riedl MA, et al. Diagnosing and managing common food allergies: a systematic review. JAMA. 2010 May 12;303(18):1848-56.

Food Allergies: Not As Common As You Might Think....



**Up to 35% believe they have
food allergies**



~3.5% confirmed by
oral food challenge
10-fold ***lower*** in reality

Source: [http://www.jacionline.org/article/S0091-6749\(07\)00991-8/abstract](http://www.jacionline.org/article/S0091-6749(07)00991-8/abstract); Rona RJ et al.
Journal of Allergy and Clinical Immunology 2007, 120:638-646



Is Celiac Disease Increasing?

- The incidence of celiac disease **is increasing** worldwide. The reasons for this are not clear, but all autoimmune diseases are increasing
- *NOT* DUE to
 - Increased gluten content in wheat
 - GMO modifications

Source: Kasarda, D. Can an Increase in Celiac Disease Be Attribute to an Increase in the Gluten Content of Wheat as a Consequence of Wheat Breeding? J Agric Food Chem 201361, 115t-59.

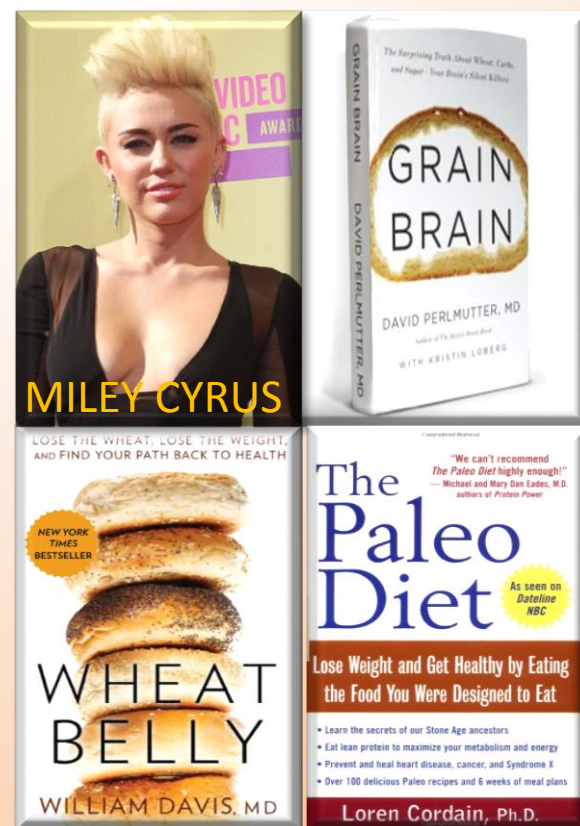


Possible Reasons for Increase in Celiac Disease

- **Clean hygiene hypothesis**
- **Poor diets overall; too little fiber**
- **Bacterial overgrowth in the gut**
- **Additional vital wheat gluten added to the food supply**
- **Improved awareness & diagnostics**
- **Higher salt intake**
- **Short fermentation time for commercial bread**
- **Increased caesarean births**
- **Introducing too much gluten to infants when they are not being breast fed**
- **Changes in our gut microbiome**

Gluten-Free: Latest Fad or Here to Stay?

- Just because “everyone” is going gluten-free doesn’t mean you should
- Like “low fat” of the ‘90s, some of the gluten-free trend will remain, especially for those with celiac disease or non-celiac gluten sensitivity, **but most will return to gluten-containing foods**



Gluten-Free is Not For Everyone

- Very hard to avoid gluten
- Gluten-free substitutes can be expensive; a recent study showed an average of 162%* higher, down from 242%** in 2008
- The taste and restrictive nature of a gluten-free diet is hard to tolerate
- Nutritionally, gluten-free can mean some nutrients are in short supply
- And, it is NOT a way to lose unwanted pounds...

*T Kulai and M Rashid. Assessment of Nutritional Adequacy and Cost of Gluten-Free Food Products. Department of Paediatrics, Dalhousie University, IWK Health Centre, Halifax, Nova Scotia, Canada 2013.

**Stevens, L, Rashid M. *Gluten-Free and Regular Foods: A Cost Comparison*. Can J Diet Prac Res. 2008

There is no published evidence to support a weight-loss claim

- If one eliminates all gluten-containing foods, they will decrease calorie consumption
- However, if they substitute gluten-free foods they will most likely increase calories

Gluten-Free Does Not Mean “Healthier”

Typically Higher In:

- Fat, sugar and calories
- Usually higher in glycemic index because they contain less fiber resulting in rapid absorption of glucose

And Lower In:

- Most are low in fiber (because they are rarely whole grain) may result in:
 - ✓ Constipation
 - ✓ Gut and other health issues
 - ✓ Risk of cancers
- B-Vitamins, folate, and iron because most are not enriched or fortified

Gluten-Free Diets & Fiber

	Fiber consumed daily	Often Resulting in:
Gluten-free diets	6 grams	Constipation; gut problems; diverticular disease; hemorrhoids
Regular U.S. diets	12-16 grams	Constipation, diverticular disease and hemorrhoids
Recommendations	25-38 grams	Rarely constipation, hemorrhoids, or diverticular disease

FDA Ruling for Labeling “Gluten-free”

- In 2007, FDA proposed a gluten-free labeling requirement of **less than** 20 mg per kg (20 ppm)
- In August of 2013 it was finalized to that amount taking effect August 2014

If You Think You Have Celiac Disease or Non-celiac 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).
 - Low FODMAP* diet may be warranted; best if supervised by a registered dietitian

*FODMAP: Fermentable Oligosaccharides, Disaccharides, Monosaccharides And Polyols
(carbohydrates in fruits, vegetables, grains, dairy and legumes)*



Gluten & Health: Causes of Sensitivities, Intolerances and Allergies

Poor gut health: changes in the microbiome (gut bacteria) have led to inflammation of the intestinal tract often caused by:

- Medications such as antacids and antibiotics
- Stress and illness

Beyond Gluten Free: Key Steps for a Healthy (Happy) Gut

- **Feed your microbiome**
 - Prebiotics: food that promotes growth of the “good” bacteria in your gut
 - Examples: inulin and gluten in wheat, barley and rye; onions, artichokes
 - Probiotics: good bacteria you eat
 - Examples: yogurt, kombucha, sauerkraut, tempeh
- **Reduce inflammation**
 - Antioxidant/anti-inflammatory foods (fruits, vegetables, whole wheat and other whole grains, nuts, fatty fish or fish oil (omega 3 fatty acids))
- **Eat smaller meals**
- **Increase fiber from grains, fruits and vegetables**
- **Healthy lifestyle:** less alcohol, not smoking, exercise

Additional Resources

- Wheat Foods Council: <http://www.wheatfoods.org>
- Center for Celiac Research & Treatment
<http://www.celiaccenter.org/>
- Shelley Case, Canadian dietitian: glutenfreediet.ca . An expert on the gluten-free diet
- National Foundation For Celiac Awareness
<http://www.celiaccentral.org/>
- Gluten Intolerance Group of North America: www.gluten.net To find restaurants that offer gluten-free menu items, camps and support groups.
- Food Allergy Network - www.foodallergy.org General allergy information and especially good for kids with multiple food issues.

