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).

- About one-half of the wheat grown in the US is used domestically.
- The rest is exported.

Wheat is the primary grain in US grain products. Approximately ¾ of all US grain products are made from wheat.
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.
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.
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?

<table>
<thead>
<tr>
<th>Claims</th>
<th>Facts</th>
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<tbody>
<tr>
<td>People can’t tolerate wheat and gluten; we don’t have the enzymes to</td>
<td>Vast majority (&gt;93%) can consume wheat and gluten</td>
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<tr>
<td>ingest wheat</td>
<td></td>
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<tr>
<td>Many, many people have allergies and intolerances to gluten</td>
<td>A few people have wheat allergies, gluten intolerances (0.5-6%)</td>
</tr>
<tr>
<td>Going gluten-free will cure most modern day illnesses</td>
<td>Obesity, diabetes, and heart disease are caused by a variety of factors</td>
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<td></td>
<td>and not a single food or food type</td>
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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

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

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...

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

<table>
<thead>
<tr>
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<th>Fiber consumed daily</th>
<th>Often Resulting in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gluten-free diets</td>
<td>6 grams</td>
<td>Constipation; gut problems; diverticular disease; hemorrhoids</td>
</tr>
<tr>
<td>Regular U.S. diets</td>
<td>12-16 grams</td>
<td>Constipation, diverticular disease and hemorrhoids</td>
</tr>
<tr>
<td>Recommendations</td>
<td>25-38 grams</td>
<td>Rarely constipation, hemorrhoids, or diverticular disease</td>
</tr>
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</table>
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)
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.celiaccentrall.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.