Gluten-Free Goodness: When, why & a *little* on how to go gluten-free.

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www.facebook.com/HarrisWholeHealth

What brings you here?

- Celiac
- IBS
- Ataxia
- Autoimmune disease
- General wellness
- Weight loss
- Curiosity!

What is Celiac Disease?

- Autoimmune disease—the body attacks itself
- Affects the villi--lining of the small intestine
- Genetic component
- Must be eating gluten to develop Celiac disease
- Lifelong condition

Who Has Celiac Disease?

- 3 million Americans! Most are undiagnosed
- 1 in 133 of healthy blood donors people within the U.S.
  - 1:22 in first-degree relatives
  - 1:39 in second-degree relatives
  - 1:56 in symptomatic patients
- Wyoming study confirmed prevalence—1 in 126

Fasano A, Berti I, Gerarduzzi I, Not T, Colletti RB et al. Prevalence of Celiac Disease in At-Risk and Not-At-Risk Groups in the United States: A Large Multicenter *Study Arch Intern Med*, 2003;163:286-292.

Katz KD, Rashtak S, Lahr BD, Melton LJ 3rd, Krause PK, Maggi K, Talley NJ, Murray Screening for celiac disease in a North American population: sequential serology and gastrointestinal symptoms. *JA Am J Gastroenterol*. 2011 Jul;106(7):1333-9.

"Symptomatic"

- **Diarrhea**
- **Abdominal pain**
- **Constipation**
- Down syndrome
- Idiopathic infertility
- Type 1 DM
- Anemia
- Short stature
- Joint pain
- Arthritis
- Fatigue
- Osteoporosis
- Sjögren's syndrome

Fasano A, Berti I, Gerarduzzi I, Not T, Colletti RB et al. Prevalence of Celiac Disease in At-Risk and Not-At-Risk Groups in the United States: A Large Multicenter *Study Arch Intern Med*, 2003;163:286-292.

- Most people with Celiac disease in the U.S. are currently UNDIAGNOSED
- Diagnosis takes 9-11 years (9.7 years according to a 2011 Swedish study, and 11.7 years according to a 2007 article based on a Canadian Health Survey

Norstrom F, Lindholm L, Sandstrom O, et al. Delay to celiac disease diagnosis and its implications for health-related quality of life. BMC Gastroenterol 2011 Nov 7; 11(1):118.

Cranney A, Zarkadas M, Graham ID, et al. The Canadian celiac health survey. Dig Dis Sci. 2007;52:1087-95.

Think beyond the gut!

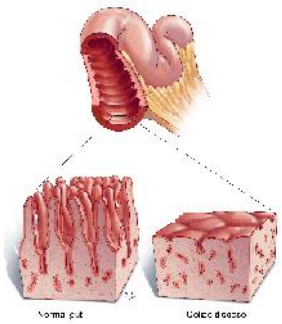
- In population screening studies, most people newly diagnosed with celiac disease were ASYMPTOMATIC or had "ATYPICAL" presentations.

Katz KD, Rashtak S, Lahr BD, Melton LJ 3rd, Krause PK, Maggi K, Talley NJ, Murray Screening for celiac disease in a North American population: sequential serology and gastrointestinal symptoms. *JA Am J Gastroenterol.* 2011 Jul;106(7):1333-9.

Consequences of Undiagnosed CD

- Villus atropy → malabsorption of nutrients
- Many nutrient deficiencies possible
  - Anemia (iron deficiency)
  - B vitamin deficiencies (folate, B12, etc.)
  - All fat soluble vitamins: Vitamin A, E, D, K deficiencies
  - Calcium deficiency
  - Magnesium
  - Zinc
  - Copper

Barton SH, Kelly DG, Murray JA. Nutritional deficiencies in celiac disease. Gastroenterol Clin North Am. 2007; 36 (1): 93-108.



Consequences of Undiagnosed CD

- Short stature
- Osteopenia/osteoporosis
- Increased risk of miscarriage or congenital malformations
- ~6 X the risk of lymphoma
- ↑Risk of developing other autoimmune conditions

Leslie L, et al "Increased incidence of non-Hodgkin's lymphoma subtypes in patients with celiac disease" *DDW* 2011; Abstract 146.

Ventura A, Magazzu G,Greco L, Duration of exposure to gluten and risk for autoimmune disorders in patients with celiac disease. *Gastroenterology*, 117 (1999), pp. 297-303

Risk for other autoimmune diseases

- "We believe that undiagnosed and untreated Celiac Disease may switch on some as-yet-unknown, immunological mechanism that sets off a cascade of other disorders."

Berti, I. Usefulness of Screening Program for Celiac Disease in Autoimmune Thyroiditis. *Digestive Diseases and Sciences*, Vol. 45, No. 2 (February 2000), pp. 403-406.

Protocol

Screening (serology)

↓

Biopsy

↓

THEN gluten-free diet!

Why Test for Celiac?

- It is a MEDICAL DIAGNOSIS for a lifelong diet!
- More severe consequences → people follow the diet more strictly.
- More thorough medical follow-up.
- Insurance, work and school accommodations, etc.
- On the horizon: medications, vaccines, etc.

Testing for Celiac Disease

- Blood test is about 95% accurate.
- Biopsy to confirm.
- MUST BE EATING GLUTEN for the test to be accurate!

Leffler DA and Schuppan D. Blood tests in Celiac Disease. In: Dennis M, Leffler D. Real Life with Celiac Disease. Bethesda, MD: AGA Press; 2010: 29-36.

Blood Screening— Most Accurate Methods

- Tissue Transglutaminase (tTg) IgA
- Total Serum IgA
- Tissue Transglutaminase (tTg) IgG
- Endomesial Antibody (EMA)
- DGP (Deaminated Gliadin Peptide)

Non-Specific Screeners for Celiac

- IgA AGA (Anti Gliadin Antibodies)
- IgG AGA (Anti Gliadin Antibodies)
- Gene tests
  - HLA Typing for DQ2
  - HLA Typing for DQ8

Methods Not Currently Scientifically Supported for Celiac Screening

- RAST
- Skin Prick Test
- Stool AGA Testing
- Stool tTG/EMA testing
- Saliva tTG/EMA testing

What is gluten?

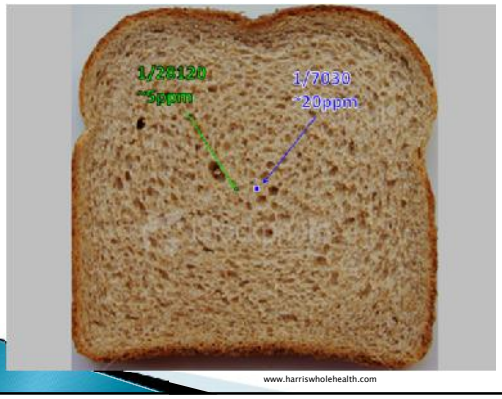
Storage protein found in
- Wheat (MANY other words for wheat!)
- Barley
- Rye
- Most oats, by cross-contamination

Permanently off-limits for all people with Celiac Disease

How much is safe?

- Essentially none.
- Proposed U.S. definition of "gluten-free" is **less** than 20 ppm (others suggest 5 or 10 ppm is safer.)
- 20 ppm=take a piece of bread and cut it into 7,030 pieces
- Smaller than most crumbs

Food and Drug Administration Food Labeling and Guidance Regulatory Information
http://www.fda.gov/Food/LabelingNutrition/FoodLabelingGuidanceRegulatoryInformation/Topic-SpecificLabelingInformation/default.htm#gluten
Accessibility verified December 6th, 2011.



Naturally Gluten-free Foods

PLAIN
- Fruits
- Vegetables
- Nuts
- Seeds
- Beans
- Lentils
- Eggs
- Dairy
- Poultry
- Meat
- Fish
- Single ingredient foods: rice, wild rice, honey, sugar, etc.

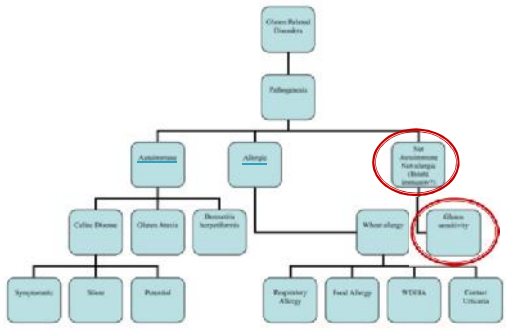
What about when it's not Celiac?

- Gluten sensitivity: a real problem

What is gluten sensitivity?

- **"Those cases of gluten reaction in which both allergic and autoimmune mechanisms have been ruled out (diagnosis by exclusion criteria)".**
- People who experience reactions to gluten, yet have tested negative for Celiac Disease and wheat allergy.

Sapone A, Bai JC, Ciacci C . Proposed new nomenclature and classification of gluten-related disorders. BMC Medicine 2012 10:13 doi:10.1186/1741-7015-10-13



Sapone A, Bai JC, Ciacci C . Proposed new nomenclature and classification of gluten-related disorders. BMC Medicine 2012 10:13 doi:10.1186/1741-7015-10-13

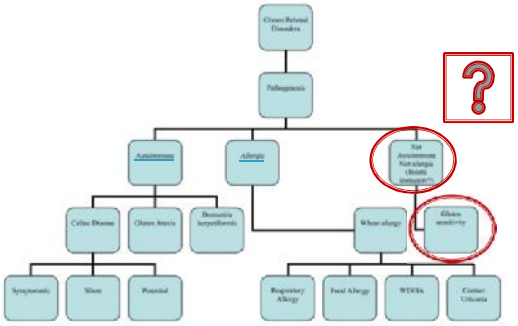
Autoimmune Gluten Conditions:

- Celiac Disease
- Dermatitis Herpetiformis: Itchy, gluten-related, usually symmetrical skin rash. Affects ~1/10,000.
- Gluten Ataxia: gluten causes damage to the cerebellum in the brain, causing lack of coordination of muscle movements.

What is Wheat Allergy?

- In the U.S., .1% have a documented wheat allergy.
- Usually in infants/toddlers, less common in adolescents/adults.
- Symptoms include swelling, itching and irritation in nose, eyes and throat, difficulty breathing, etc.
- CAN cause GI symptoms—cramping, nausea, bloating, diarrhea, etc.
- Most infants and children grow out of it.
- No reaction to barley, rye, oats, etc.

Pietzak M. Celiac disease, wheat allergy, and gluten sensitivity: when gluten free is not a fad. JPEN J Parenter Enteral Nutr. 2012 Jan;36(1 Suppl):68S-75S.



Sapone A, Bai JC, Ciacci C . Proposed new nomenclature and classification of gluten-related disorders. BMC Medicine 2012 10:13 doi:10.1186/1741-7015-10-13

GS: Symptoms!

- Diarrhea
- Gas
- Weight loss
- Abdominal pain
- Bone/joint pain
- Osteoporosis
- Unexplained anemia

Sapone A, Lammers KM, Casolaro V, et al. Divergence of gut permeability and mucosal immune gene expression in two gluten associated conditions: celiac disease and gluten sensitivity. BMC Med. 2011;9:23

Other reasons why people may eat gluten-free

- **Gluten sensitivity: "Those cases of gluten reaction in which both allergic and autoimmune mechanisms have been ruled out (diagnosis by exclusion criteria)".**
- Wheat allergies
- Low FODMAP diet (low gluten)
- EoE

Sapone A, Bai JC, Ciacci C . Proposed new nomenclature and classification of gluten-related disorders. BMC Medicine 2012 10:13 doi:10.1186/1741-7015-10-13

Symptoms of Gluten Sensitivity

- Abdominal pain (68%)
- Eczema and/or rash (40%)
- Headache (35%)
- 'foggy mind' (34%)
- Fatigue (33%)
- Diarrhea (33%)
- Depression (22%)
- Anemia (20%)
- Numbness in the legs, arms or fingers 20%
- Joint pain (11%).

Data from the Center for Celiac Research 2004-2010

Consequences of Gluten Ingestion:

Celiac disease:

- Symptoms &discomfort OR no symptoms
- Intestinal damage
- Nutritional deficiencies
- Infertility/miscarriage
- Other autoimmune reactions
- Increased risk of certain cancers
- Increased mortality

Gluten sensitivity:

- Symptoms and discomfort

Pietzak M. Celiac Disease, wheat allergy and gluten sensitivity: when gluten free is not a fad. JPEN 2012; 36 (1Suppl):68S-75S.

Gluten Sensitivity vs Celiac

- "GS patients are unable to tolerate gluten and develop an adverse reaction when eating gluten that usually, and differently from CD, does not lead to small intestinal damage. While…symptoms may resemble those associated with CD, the overall clinical picture is less severe and is not accompanied by the concurrence of tTG autoantibodies or autoimmune disease"

Sapone A, Lammers KM, Casolaro V, et al. Divergence of gut permeability and mucosal immune gene expression in two gluten associated conditions: celiac disease and gluten sensitivity. BMC Med. 2011;9:23

Comparison Overview

	Celiac Disease	Gluten Sensitivity
Prevalence	~1% about 3 million Americans	~6%=about 18 million Americans
Diagnosis	Bloodwork & endoscopy	Excluding Celiac & wheat allergy
Treatment	Gluten-free diet	Gluten-free diet
Cause	Autoimmune	Unknown (innate?)
Amt. gluten allowed	Less than 20 ppm	Unknown
Duration	Lifelong	Unknown

Testing for Gluten Sensitivity

- "Confusing the picture further are private labs that offer tests of stool or saliva that they say can definitively diagnose gluten sensitivity. Experts say that such tests haven't been validated and shouldn't be relied on for a diagnosis. 'If anyone claims they have a test that is specifically for gluten sensitivity, there is no such thing, though I'm not ruling it out in the future,' says Dr. Alessio Fasano".

New Guide to Who Really Shouldn't Eat Gluten. WSJ. Feb 6, 2012. http://online.wsj.com/article/SB10001424052970204136404577206891526292590.html

Gluten Sensitivity in IBS

- Double blinded, randomized, placebo controlled trial.
- Increase in IBS symptoms when eating gluten, and biggest change during the 1st week.
- In "glutened" group, significantly more pain, fatigue, bloating and stool changes.
- In symptomatic people, no changes in inflammatory markers.
- 56% had DQ2/8 (general population ~35-40%)

Biesiekierski JR, Newnham ED, Irving PM *et al.* Gluten causes gastrointestinal symptoms in subjects without celiac disease: a double-blind randomized placebo-controlled trial. Am J Gastroenterol 2011;106:508-514.

Which IBS Patients Respond to Gluten Withdrawal?

- More likely to have positive AGA IgG
- More likely than controls to have the DQ2 gene (generally associated with Celiac Disease)

Wahnschaffe U, Schulzke JD, Zeitz M, et al. Predictors of clinical response to gluten-free diet in patients diagnosed with diarrhea-predominant irritable bowel syndrome. Clin Gastroenterol Hepatol. 2007;5:844-50.

Is it the gluten…or something else?

- One study showed put people on a low FODMAP diet.
- Introduced gluten & gluten didn't seem to be the problem for almost all people.

Biesiekirski, J.R.; Peters, S.L.; Newnham, E.D.et al. No effects of gluten in patients with self-reported non-celiac gluten sensitivity following dietary reduction of low-fermentable, poorly absorbed, short-chain carbohydrates. ***Gastroenterol*** 2013, 145, 320-328, doi:10.1053/j.gastro.2013.04.051.

FODMAPs

Graphic from Patsy Catsos, MS, RD

But for some, NCGS is real

- New study (Feb 2015)
- On average, more symptoms with gluten than placebo
- However, for many, change wasn't statistically significant

Di Sabatino, Volta, Salvatore, Biancheri, Caio, De Giorgio, Di Stefano, Corazza GR. Small Amounts of Gluten in Subjects with Suspected Nonceliac Gluten Sensitivity: a Randomized, Double-Blind, Placebo-Controlled, Cross-Over Trial. *Clin Gastroenterol Hepatol.* 2015 Feb 19.

GS Links

- IBS
- Gluten Ataxia
- Schizophrenia
- Psoriasis
- Thyroid disease
- Bipolar disorder
- Down syndrome
- Type 1 diabetes
- Autism (???)

Schizophrenia

- Studies show different gluten-related markers than people with CD.
- Particularly people with recent onset schizophrenia had elevated anti-gliadin antibodies (AGA IgG) but not typical Celiac disease markers.

Samaroo D, Dickerson F, Kasarda DD et al. Novel immune response to gluten in individuals with schizophrenia. Schizophr Res. 2010 May;118(1-3):248-55.

Dickerson F, Stallings C, Origoni A, et al. Markers of gluten sensitivity and celiac disease in recent-onset psychosis and multi-episode schizophrenia. Biol Psychiatry. 2010 Jul 1;68(1):100-4.

Schizophrenia

- "A drastic reduction, if not full remission, of schizophrenic symptoms after initiation of gluten withdrawal has been noted in a variety of studies. However, this occurs only in a subset of schizophrenic patients."

Kalaydjian AE, Eaton W, Cascella N, Fasano A. The gluten connection: the association between schizophrenia and celiac disease. Acta Psychiatr Scand. 2006 Feb ;113(2):82-90.

Down Syndrome

- High percentage of patients have AGA markers (41%)
- Willing patients with AGA markers and GI symptoms were biopsied, and in a subset, some villus atrophy was found.
- That subset improved symptomatically on a gluten-free diet and AGA antibody levels returned to normal.

Uibo O, Teesalu K, Metskula K et al. Screening for celiac disease in Down's syndrome patients revealed cases of subtotal villous atrophy without typical for celiac disease HLA-DQ and tissue transglutaminase antibodies. World J Gastroenterol. 2006 Mar 7;12(9):1430-4.

Bipolar Disorder

- People with bipolar disorder are more likely to have elevated AGA levels.
- Elevated AGA levels seem to confer increased risk of re-hospitalization.

Dickerson F, Stallings C, Origoni A, et al. Markers of gluten sensitivity and celiac disease in bipolar disorder. Bipolar Disord. 2011 Feb;13(1):52-8. doi: 10.1111/j.1399-5618.2011.00894.x.

Dickerson, F., et al., Markers of gluten sensitivity in acute mania: A longitudinal study, Psychiatry Res. (2012)doi:10.1016/j.psychres.2011.11.007

Psoriasis

- People with psoriasis are more likely to have elevated AGA levels.
- When patients with elevated AGA are on a GF diet for 3 months, symptoms improved significantly in 73%.
- When regular diet was resumed, symptoms worsened significantly.
- "In psoriasis patients who have IgA or IgG AGA the psoriasis can be improved by avoiding gluten in food."

Michaëlsson G, Gerdén B, Hagforsen E et al. Psoriasis patients with antibodies to gliadin can be improved by gluten-free diet. Br J Dermatol 2000; 142: 44-51.

Type 1 Diabetes

- Link between early exposure (prior to 3 months) to cereal grains and islet antibodies.
- Evidence of some pro-inflammatory gut effect of wheat (in people who had a negative blood screener for Celiac).

Ziegler AG, Schmid S, Huber D et al. Early infant feeding and risk of developing type 1 diabetes-associated autoantibodies. JAMA. 2003 Oct 1;290(13):1721-8.

Mojibian M, Chakir H, Lefebvre DE, et al. Diabetes-specific HLA-DR-restricted proinflammatory T-cell response to wheat polypeptides in tissue transglutaminase antibody-negative patients with type 1 diabetes. Diabetes. 2009 Aug ;58(8):1789-96.

Autism Spectrum Disorders

- "Available research data do not support the use of a casein-free diet, a gluten-free diet, or combined gluten-free, casein-free (GFCF) diet as a primary treatment for individuals with ASDs."
  - American Academy of Pediatrics report

Buie T, Campbell DB, Fuchs GJ, et al. Evaluation, diagnosis, and treatment of gastrointestinal disorders in individuals with ASDs: a consensus report. Pediatrics. 2010;125(supplement 1):S1-S18.

ASD

- A study has established biological plausibility
- Another saw some benefit in some children
- One showed benefits per parental report
- No AGA/Celiac link seen

de Magistris L, Familiari V, Pascotto A et al. Alterations of the intestinal barrier in patients with autism spectrum disorders and in their first-degree relatives. J Pediatr Gastroenterol Nutr. 2010 Oct;51(4):418-24.

Whiteley P, Haracopos D, Knivsberg AM et al. The ScanBrit randomised, controlled, single-blind study of a gluten- and casein-free dietary intervention for children with autism spectrum disorders. Nutr Neurosci. 2010 Apr;13(2):87-100.

Batista IC, Gandolfi L, Nobrega YK et al. Autism spectrum disorder and celiac disease: no evidence for a link. Arq Neuropsiquiatr. 2012 Jan;70(1):28-33

Pennesi C., Klein L. Effectiveness of the gluten-free, casein-free diet for children diagnosed with autism spectrum disorder: Based on parental report Nutr Neurosci., 15(2) 2012. 85-91(7).

Fashionably G-Free

- Miley Cyrus "everyone should try no gluten for a week! The change in your skin, physical and mental health is amazing! U won't go back!"

B Vitamins: Study of Grains/U.S.

- "Gluten-free products contain inferior amounts of thiamin, riboflavin and/or niacin than the wheat products they are intended to replace." Published in 1999
- Breads, pastas and most cereals are not enriched, according to U.S. study from 2000.

Thompson T. Thiamin, riboflavin, and niacin contents of the gluten-free diet: is there cause for concern? J Am Diet Assoc. 1999 Jul;99(7):858-62.

Thompson T. Folate, iron, and dietary fiber contents of the gluten-free diet . J Am Diet Assoc. 2000 Nov;100(11):1389-96.

Dietary quality

Lower intake:
- Magnesium
- Iron
- Zinc
- manganese
- Selenium
- Folate

Higher in
- simple sugars

Wild D, Robins GG, Burleyet VG al. Evidence of high sugar intake, and low fibre and mineral intake, in the gluten-free diet. Aliment Pharmacol Ther 2010; 32: 573-581.

Study comparing GF and standard foods

Significant differences seen:
- Lower protein in women
- Higher fat, especially saturated fat
- Lower fiber

Miranda J1, Lasa A, Bustamante MA, et al. Nutritional Differences Between a Gluten-free Diet and a Diet Containing Equivalent Products with Gluten. Plant Foods Hum Nutr. 2014 Mar 1.

Concerns with arsenic in rice

- Inorganic arsenic is a potential carcinogen
- Rice absorbs more than most grains
- U.S. has levels set for water, but not food
- www.glutenfreewatchdog.com

Thompson, Tricia. Gluten-Free Diet, Arsenic, and Rice http://www.glutenfreedietitian.com/newsletter/gluten-free-diet-arsenic-and-rice/ Accessed March 6, 2014.

Arsenic in Rice

- Consumer Reports 2015 issue

"Children should rarely eat hot rice cereal or rice pasta…just one serving of either could put kids over the maximum amount of rice they should have in a week. Rice cakes supply close to the weekly limit in one serving…"

- Even for adults, that limits hot cereal to 2X a week, OR a bit more than 2 servings of rice pasta.
- Amaranth, buckwheat, millet and corn had low levels of arsenic.

How "whole grain" is it?

- 8 grams~ half a serving of whole grains
- Whole Grains Council: "aim for at least 48 grams of whole grain overall, each day."

48 grams WG a day/9 grams per serving=5.33 servings of bread
1 serving= 2 slices
About 11 slices of bread a day to meet WG recommendations!

What about weight loss?

- The majority of people with Celiac disease GAIN weight on a gluten-free diet.
- Overall, people with Celiac have lower BMI than the general population before diagnosis.
  - 20.5% people overweight at diagnosis
  - 11.5% obese at diagnosis
  - While the majority of people who are underweight become normal weight, the majority of overweight/obese remain in this category.
- ¼ gain 2 BMI points over ~3 years

Kabbani TA, Goldberg A, Kelly CP. Body mass index and the risk of obesity in coeliac disease treated with the gluten-free diet. Aliment Pharmacol Ther 2012; 35: 723-729

Should Everyone be Gluten-Free?

- "No, although the human race does not appear to be evolved to digest gluten well, and these proteins are highly immunologically reactive, no current data suggest that the general population should maintain a gluten-free lifestyle in the absence (of Celiac, wheat allergy, gluten sensitivity and potentially IBS/Autism)"

Pietzak M. Celiac Disease, wheat allergy and gluten sensitivity: when gluten free is not a fad. JPEN 2012; 36 (1Suppl):68S-75S.

Other cautions

- Danger of the "nocebo" affect
- Other underlying issues
  - Wheat intolerance?
  - FODMAPS?
  - Yeast intolerance?

Di Sabatino A, Corrazza GR "Nonceliac gluten sensitivity: sense or sensibility?" Ann Intern Med 2012; 156: 309–311.

Support Groups

- Celiac Disease Foundation (CDF) www.celiac.org
- Gluten Intolerance Group of North America (GIG) www.gluten.net
- Celiac Sprue Association/USA Inc. (CSA) www.csaceliacs.org
- Many support groups are unaffiliated.

Research-Based Celiac Information

- American Celiac Disease Alliance www.americanceliac.org
- Beth Israel Deaconess: http://www.bidmc.org/
- Children's Digestive Health and Nutrition Foundation (CDHNF)www.cdhnf.org
- National Institutes of Health http://www.celiac.nih.gov/
- North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition www.naspghan.org
- University of Chicago Disease Center http://www.celiacdisease.net/
- University of Maryland Center for Celiac Disease http://medschool.umaryland.edu/celiac/

My Favorite Books

- The First Year by Jules Shepherd
- Gluten Freedom by Alessio Fasano, MD
- Gluten-Free Diet by Shelley Case
- Real Life with Celiac Disease by Melinda Dennis
- Gluten Free Nutrition Guide by Tricia Thompson
- American Dietetics Association's Easy Gluten Free: Expert Advice with More Than100 Recipes by Tricia Thompson and Marlisa Brown

- All on Amazon

A short review of labels…

More Obvious Sources of Gluten

- Breads
- Cakes
- Cookies
- Crackers
- Donuts
- Pastas
- Pizza

Less obvious sources of gluten

- Potato bread
- Pita bread
- Egg noodles
- Corn bread
- Pumpernickel bread
- Many Ezekiel/sprouted breads

What's in a name?

- Bulgar (wheat)
- **Couscous** (wheat)
- Durum (wheat)
- Einkorn (wheat)
- Emmer (wheat)
- Farina (wheat)
- Farro (wheat)
- Kamut (wheat)
- Matzo (wheat)
- Semolina (wheat)
- **Spelt (wheat)**
- Tabbouleh (wheat)
- Tricale (wheat/rye hybrid)
- Wheat flours (cake flour, pastry flour, self rising flour, whole wheat, enriched flour, etc.

Potential Sources of Gluten

- Broth, Soup bases (BARLEY)
- Brown rice syrup (BARLEY)
- Candy (WHEAT, BARLEY)
- Communion wafers (WHEAT)
- Drugs & OTCs (WHEAT)
- Herbal supplements (WHEAT, BARLEY)
- Imitation bacon (WHEAT)
- Imitation seafood (WHEAT)
- Lunchmeat, sausages, frankfurters (WHEAT)
- Marinades (WHEAT), (BARLEY)
- Playdough (WHEAT)
- Processed luncheon meats (WHEAT)
- Rice mixes (WHEAT), (BARLEY)
- Sauces, Gravies (WHEAT)
- Soy sauce or soy sauce solids (WHEAT), (BARLEY)
- Stuffing, Dressing (WHEAT)
- Tea (BARLEY)
- Thickeners (Roux) (WHEAT)
- Vitamins & Minerals (WHEAT)

FALCPA—Food Allergen Labeling Consumer Protection Act of 2004

Since 2006, the top 8 allergens must be clearly labeled. Includes WHEAT (not rye, barley or oats.)

- Foods covered by the FDA (NOT meat, poultry, and egg products, which are regulated by USDA)
- Supplements ARE covered (not medications or OTCs)
- Foods produced since 2006 (beware of old pantries!)

http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodLabelingNutrition/ucm059116.htm

Just a few words to remember!

- WHEAT
- Barley
  - Malt
    - Malt flavoring
    - Malt extract
    - Malt vinegar
- Rye
- Oats
- Brewers' yeast

Commonly Mistaken Terms

- Food starch
- Maltodextrin
- Modified food starch
- Monosodium Glutamate (MSG)
- Natural color
- Dextrin

For foods under FALCPA, if these ingredients contain wheat, it will be clearly labeled.

JUST LOOK FOR "WHEAT"!

No More Hidden Wheat

If foods covered by the FDA packaged after 2006 contain wheat, it will be clearly listed on the label either as:

Flour (Wheat)

or

a statement saying "Contains Wheat"

It will not be hidden under another term!

Barley

Usually have gluten:

- BEER
- Malt
- Malt flavoring
- Malt vinegar
- Malt extract
- Brewer's yeast

Question:

- Natural flavor (rarely)
- Smoke flavor (rarely)

Some products which *may* contain barley:

- Maple extract
- Brown rice syrup
- Soups/broth
- Chocolate
- Flavored vinegars
- Miso
- Tea

Rye

- Rye is usually labeled, oats will be discussed

Common questions

- Vinegar:

If distilled and plain, all gluten-free, except malt vinegar, EVEN if it was originally derived from wheat.

Case S. Gluten-Free Diet: A Comprehensive Resource Guide. Regina, Saskatchewan, Canada: Case Nutrition Consulting; 2008:33-36.

Oats

- Only certified gluten-free
- Moderate quantities are tolerated by most, but not all, people with Celiac Disease
- "Studies have shown that incorporating oats uncontaminated with wheat, barley or rye into a gluten-free dietary pattern for people with celiac disease at intake levels of approximately 50g dry oats per day is generally safe and improves compliance"
- Rating: Fair, conditional

EAL: Recommendations Celiac Disease Inclusion of Gluten-free Oats http://www.adaevidencelibrary.com/template.cfm?template=guide_summary&key=2103 Accessed Dec 10, 2011

Alcoholic Beverages

- Beer, lager and ale are usually made from barley
- Distilled alcohol: whiskey, rye, rum, bourbon, gin is considered GLUTEN-FREE, even if it was distilled from wheat
- Wine is from grapes=gluten-free
- Many GF ciders—Woodchuck, etc.
- Check on mixed drinks

Case S. Gluten-Free Diet: A Comprehensive Resource Guide. Regina, Saskatchewan, Canada: Case Nutrition Consulting; 2008:33-36.

Label Reading

ALWAYS. No exceptions.
Great tools:

- **CSA product listing www.csaceliacs.com**
- **Triumph Guide Grocery Guide, published annually http://triumphdining.com**
- Cecelia's Marketplace **http://www.ceceliasmarketplace.com/**

Apps, etc.

- Gluten free groceries by Triumph dining
- Is that gluten free? for dining out & groceries
- IEatOut allergyfreepassport.com/apps/ieatout/
- GlutenFreeMe
- Zeer.com http://www.zeer.com
- ADA review of 10 GF Apps www.eatright.org/Media/content.aspx?id=6442467101

Restaurants

- www.glutenfreetravelsite.com
- www.glutenfreeregistry.com

Cross Contamination

- No double dipping or use separate jars (jelly, PB, mayo, mustard, hummus, etc.)
- Clean cutting boards, utensils, etc.
- No shared toasters
- Label foods and use separate cupboards
- No buffets, salad bars, bulk bins, fondue, etc.