



WEBINARS

Gluten-Free Diet: Heart Healthy Solutions

*Anne Roland Lee MEd, RD, LD
Director of Nutritional Services
Schar USA*



Dr Schär
Institute

Two Important Reminders!

- ① A **recording of each webinar** will be posted along with the **webinar slides** within **72 hours** after the live Webinar ends. To download recorded webinars and slides, visit the Archived Webinars page: CeliacCentral.org/webinars/archive/
- ② **Continuing Education Credit:**
 - Registered Dietitians (RD) and Dietetic Technicians, Registered (DTR) are able to participate in this live 60-minute webinar to obtain continuing education credits regardless of this program's approval status as long as the webinar is professional in nature. NFCA will provide a certificate as proof of participation for each webinar. **Attendees must complete the program evaluation/follow-up survey in order to access this certificate. Program participants will receive a link to complete the program evaluation/follow-up survey 24 hours after the close of the webinar through an email from GoToWebinar.**
 - Please note that RDs and DTRs are not permitted to claim credits by viewing archived webinars. Only those who register and attend live webinars will receive the opportunity to obtain continuing education credits.



Watch & Win!!

Ten lucky webinar participants will each win a special prize pack with the following products from Schar USA*:

- **Oven Mitt**
- **Ciabatta Parbaked Rolls**
- **Baguettes**
- **Sub-Sandwich Rolls**



www.schar.com/us



**NFCA will contact winners within 24-48 hours after live event.*



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



NFCA Welcomes You!

Anne Lee, MSED, RD, LD



- *Diagnosed with celiac disease in 2004*
- *Former Nutritionist, Celiac Disease Center, Columbia University*
- *Currently Director of Nutritional Services, Schar USA*
- *NFCA Scientific/Medical Advisory Board member*
- *Academy of Nutrition and Dietetics member*
- *Member of Dietetic Practice Groups: Dietitians in Gluten Intolerance Diseases (DIGID) and Educators of Dietetic Practitioners*



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Today's Learning Objectives

- ① Define what a heart healthy lifestyle is really all about.
- ② Implement strategies to increase the fiber and decrease the fat without sacrificing any nutrients or flavor in the gluten-free diet.
- ③ Include healthy grains and still have time for exercise and activity.
- ④ Identify the ideal ingredients that you want on a nutrition label.



Quick Review!

What is Celiac Disease?

- **Autoimmune disease that damages the small intestine and interferes with absorption of nutrients from food.**
- **Modes of detection include:**
 - Anemia 15%
 - Reduced bone density 15%
 - Screening of first degree relatives 13%
 - Incidental diagnosis at biopsy 8%



Fast Facts!

Who does Celiac affect?

- **International:** 1% of population worldwide
- **West coast of Ireland:** 1 in 65
- **Sub Sahara (Ethiopia):** 1 in 65
- **Latin America (Argentina, Columbia, Brazil):** 1 in 100
- **Asia:** Northern China & India higher than rest of Asia
- **Jewish populations:** Not well documented but thought to exceed 1 in 100



*No economic boundaries
No geographic boundaries
Not age specific*



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.





The Gluten-Free Diet...

- **Gluten**: General term for the storage protein in grains
 - Wheat, rye and barley share similar protein sequences
- **Gliadin**: Alcohol soluble portion of gluten
- When we talk about gluten or gliadin content, we essentially are talking about the specific protein sequence in specific grains.



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



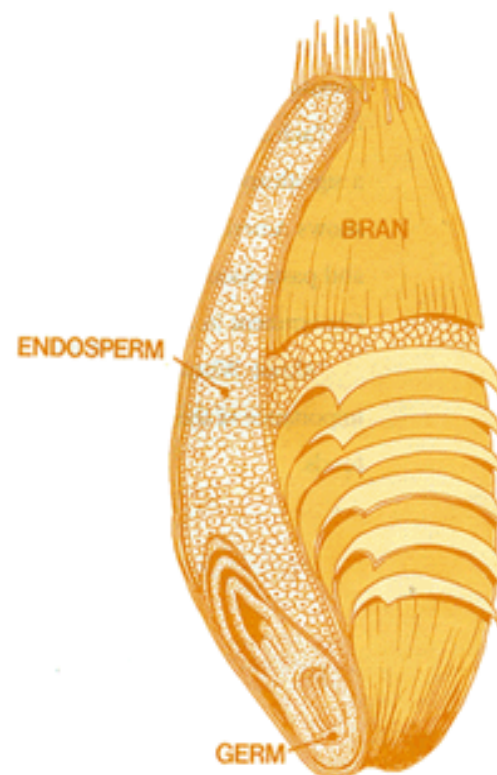
What is gluten anyway?

Anatomy of a Whole Grain Kernel

Bran: The multi-layered outer skin of the kernel that helps to protect the other two parts of the kernel from sunlight, pests, water, and disease. It contains important antioxidants, iron, zinc, copper, magnesium, B vitamins, fiber, and phytonutrients.

Germ: The embryo, which, if fertilized by pollen, will sprout into a new plant. It contains B vitamins, vitamin E, antioxidants, phytonutrients, and unsaturated fats.

Endosperm: The germ's food supply, which, if the grain were allowed to grow, would provide essential energy to the young plant. As the largest portion of the kernel, the endosperm contains starchy carbohydrates, proteins, and small amounts of vitamins and minerals.



Consumers/diagram_kernel.html



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



February: American Heart Month

Heart Health Recommendations from the American Heart Association



• Heart Healthy Diet

- Lean animal protein, beans, legumes, nuts and seeds
- **Decrease amount of fats**, especially saturated fats
- Use polyunsaturated fats
- Increase fiber intake:
 - Use **whole grains** & complex carbohydrates
 - Soluble fibers (dissolves in water; helps to lower blood cholesterol levels)

• Moderate use of sodium

• Moderate use of alcohol

• Daily activity

- An hour per day of moderate activity
- Walking, bicycling, yoga
- **Weight management**



WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Gluten-Free and Heart Healthy: The Essential Components

① **Increase whole grains!**

- Fiber: Soluble vs. insoluble

② **Decrease fat!**

- Saturated (bad) vs. unsaturated
 - Unsaturated fats: Emphasize Omega-3s such as safflower, sunflower & canola oils
 - Monounsaturated (good) fats: Avocado, nuts & olive oil

③ **Incorporate weight management practices!**

- Several studies have shown that on a gluten-free diet, people with celiac disease increase weight. Long-term use of traditional gluten-free diet is linked to increase in weight.
- Increased weight is associated with heart disease

Solutions? Active lifestyle, choose naturally gluten-free choices and the right packaged gluten-free products.



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



How Much of A Concern is Heart Disease?

- *1 in 5 deaths in the U.S. is caused by ischemic heart disease*
 - Leading cause of death for Americans
- *Inflammation is a risk factor for atrial fibrillation*
 - Elevated markers for inflammation precede the onset of atrial fibrillation
- *More women die of heart disease than all forms of cancer combined*
- *Cardiovascular disease is the most common cause of death in patients with celiac disease*



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Recent Findings on Heart Disease and Celiac Disease

- **Atrial Fibrillation (AF; irregular and often rapid heart rate)** *Emilsson et al, 2011*
 - Inflammation markers precede onset of AF
 - Positive correlation between celiac and AF, in both before and after diagnosis
 - Celiac disease is a risk factor for later AF (30%)
 - Patients with celiac disease have an increased risk of AF
- **Ischemic heart disease (IHD; narrowing of the coronary arteries)** *Ludvigsson et al, 2011*
 - Chronic inflammation is major risk factor for IHD
 - 19 % increased risk of IHD with diagnosed celiac disease
 - 15% if IHD event were linked to celiac disease when diagnosed at age 60
 - Unknown - Is inflammation due to poor dietary compliance?



Standard Gluten-Free Dietary Pattern

- **Breakfast**

- **Rice** cereal



- **Lunch**

- **Tapioca** bread



- **Dinner**

- **Rice** pasta

- **Snacks**

- **Chips, cookies, donuts**



In Comparison...

A Wheat-Based Diet

- Naturally high in fiber and B-Complex vitamins
- Offers great taste, variety and palatability
- Flour-based foods are required to be enriched or fortified with:
 - *Iron, thiamin, niacin, riboflavin, and folate*

Special Dietary Products (Gluten-Free, Diabetic, Low Salt, etc.)

- Not required to enrich or fortify by the FDA
- Do not typically offer all of the nutrients the body requires



Nutritional Adequacy of Gluten-Free Diet

Gluten-Free Products

- Traditionally used starches are dry, causing foods to crumble
- Additional fat, sugar, salt, and palm oil to compensate for texture

Compared to Wheat-Based Products

- Increased:
 - Fat and calories
- Decreased:
 - Fiber
 - B- Complex vitamins

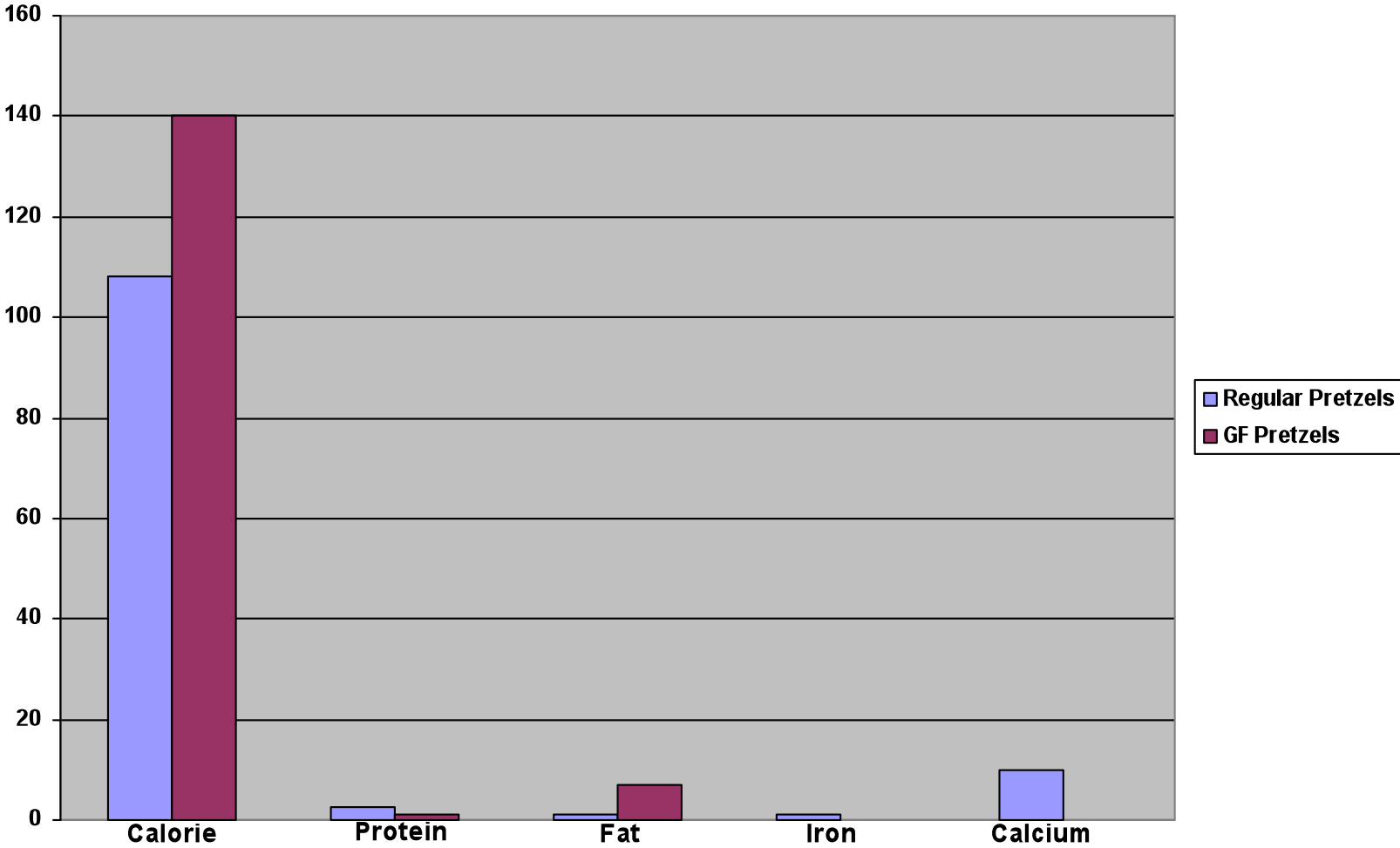


WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Comparison of Regular & GF Pretzels



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Case Studies: Nutritional Deficiencies of GFD

Study #1:

- Population of 30 adults
- On diet for 8 to 12 years
- Reviewed both lab data and 4-day food diary
- Results
 - **Increased body weight (1 kg = 2.2lbs)**
 - Males increased 9.8 kg (from 70.4 to 79.2 kg)
 - Females increased 9.9 kg (from 62.1 to 71.0 kg)
 - **56% had signs of nutritional deficiency**
 - **Poor vitamin status**
 - *Biopsy proven remission – not malabsorption*
 - **Number of bread servings comparable to controls**
 - *Folate intake from gluten-free bread products was lower*

Hallert, 2002; *Aliment Pharmacol Ther*, 16



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Case Studies:

Nutritional Deficiencies of GFD

Study #2:

- Population: 371 diagnosed over 10-year period
- Compared BMI at diagnosis and at two-year follow-up
- Results:
 - 4% underweight (BMI<18.5)
 - 57% normal BMI (18.5-24.9)
 - 39% overweight (BMI >25)
 - 13% of these were obese (BMI>30)
- Two-year follow-up:
 - Mean BMI rose from 24.4 to 25.9
 - **Weight gain in 81%**
 - **82% of the initial overweight patients gained more**

Dickey, 2006;Am J Gastro, 101



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Case Studies:

Nutritional Deficiencies of GFD

Study #3:

- Population of 47 adults
- Review of three-day food intake records
- Results:
 - Measured against the Recommended Dietary Allowance
 - **Fiber: 46% females, 88% males**
 - **Calcium: 31% females, 63% males**
 - **Iron: 44% females, 100% males**
 - **Grain consumption below recommendations**
 - Majority of grain foods consumed were quick breads, including donuts and muffins, followed by cold cereals and savory snacks
 - Rice was main side dish consumed

Thompson, 2005. Consumption Patterns of Americans, previously unreported data



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Is There A Solution?

Alternate Grain Study, 2009

- Current gluten-free diet is a cause for concern on 3 levels:
 - ① Nutrient deficiencies
 - ② Increased risk of heart disease
 - ③ Increased weight
- Study proposal:
 - Substituting the commonly used grains in the gluten-free diet should improve the nutrient profile of diet
 - Increase the fiber (soluble fiber) content
- Method:
 - 50-food intake record
 - Substituted the grain selection
 - Compared nutrient analysis



Impact of Alternative Grains

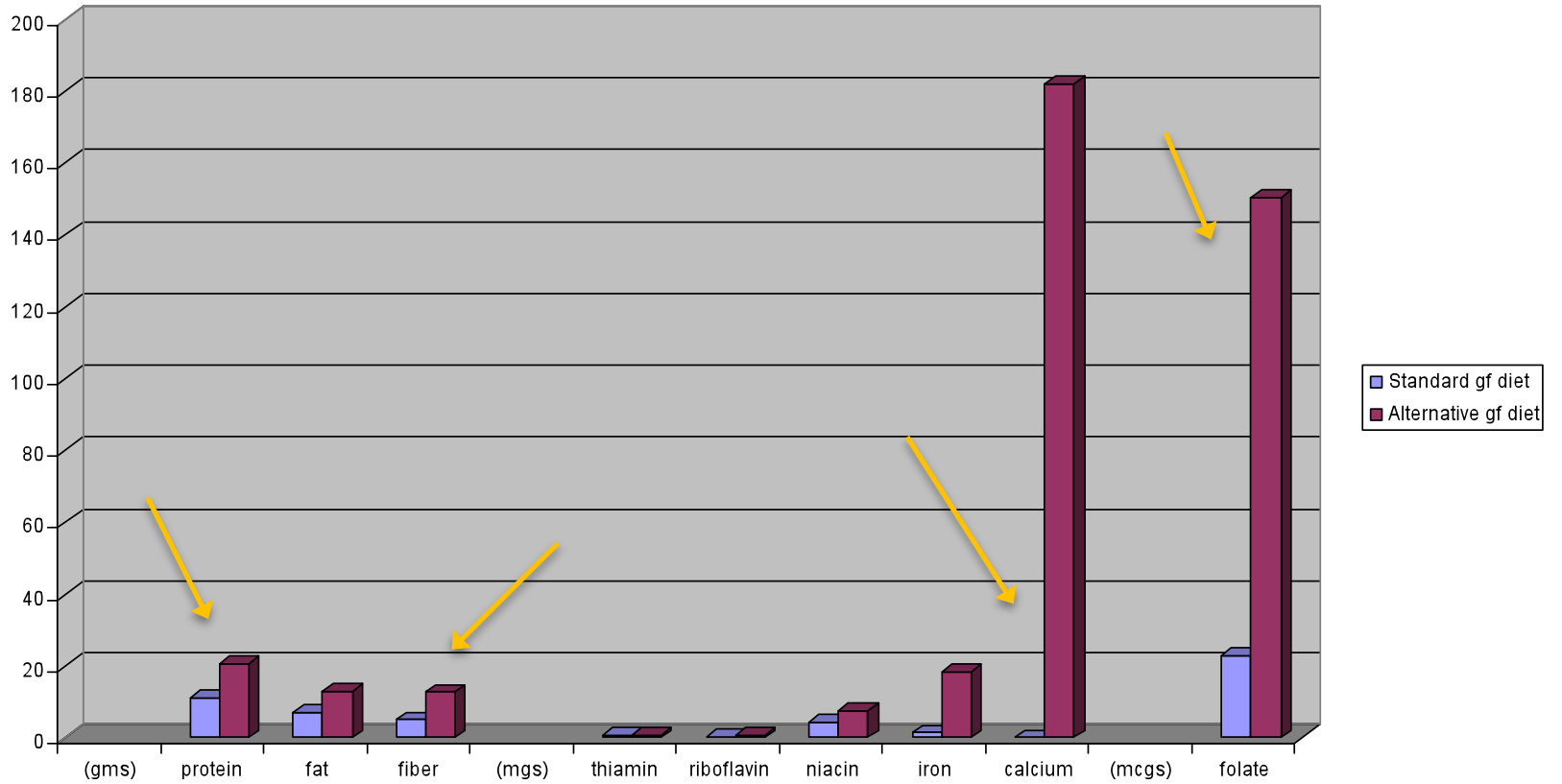
- Addition of alternate grains increases the nutrient density of the diet:
 - **Three-fold increase in fiber**
 - **Two-fold increase in some nutrients**
 - Thiamin, iron, calcium
- Adds flavor, satiety and variety
- May increase compliance
- Reduce the risk of inflammation associated with heart disease
- May decrease economic burden of diet



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Nutrient comparison of standard vs alternate diet



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Go Beyond & Focus On Gluten-Free Heart Healthy Grains

- Traditional gluten-free grains (*higher fiber – look for soluble fiber*)
- Use naturally gluten-free products (*lower fat*)
- Bonus!
 - Provides additional nutrients
 - *B-Complex vitamins*
 - *Minerals: Iron, calcium, and magnesium*
 - Offers great taste, texture, & variety



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Grain Solutions: **Buckwheat**

- It's just a name!
 - Great source of *protein*
 - *High Fiber*
 - Good source of soluble fiber
 - Good source of *B vitamins*
- Uses: *Soups, hot cereal, pasta dishes*
- Full, nutty taste



WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Grain Solutions: **Gluten-Free Oats**

- **Must be:**

- Gluten-free oats
- Certified and tested gluten-free

- **Adds:**

- Soluble fiber – lowers cholesterol and LDL
- Texture and taste
- Convenience
- B-Complex vitamins

- **Uses:**

- Breakfast cereal – hot or cold (granola)
- Baking for taste and texture
- Main dish as a coating
- Oat groats as a side dish



Grain Solutions: *Millet*

- One of the oldest grains!
- High in:
 - *Magnesium*
 - *Vitamin A*
 - *B-Complex*
 - *Fiber and soluble fiber*
- Uses:
 - *Side dish*
 - *Flakes (hot cereal)*
 - *Flakes and flour (baking)*
- Mild flavor, fluffy texture



WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Grain Solutions: Quinoa

- High in:
 - *Quality protein – similar to milk*
 - *Fiber – good soluble fiber*
 - *B complex*
 - *Iron*
- Uses:
 - *Side dish*
 - *Salads*
 - *Baking*
 - *Pasta*
 - *Flakes (hot cereal)*

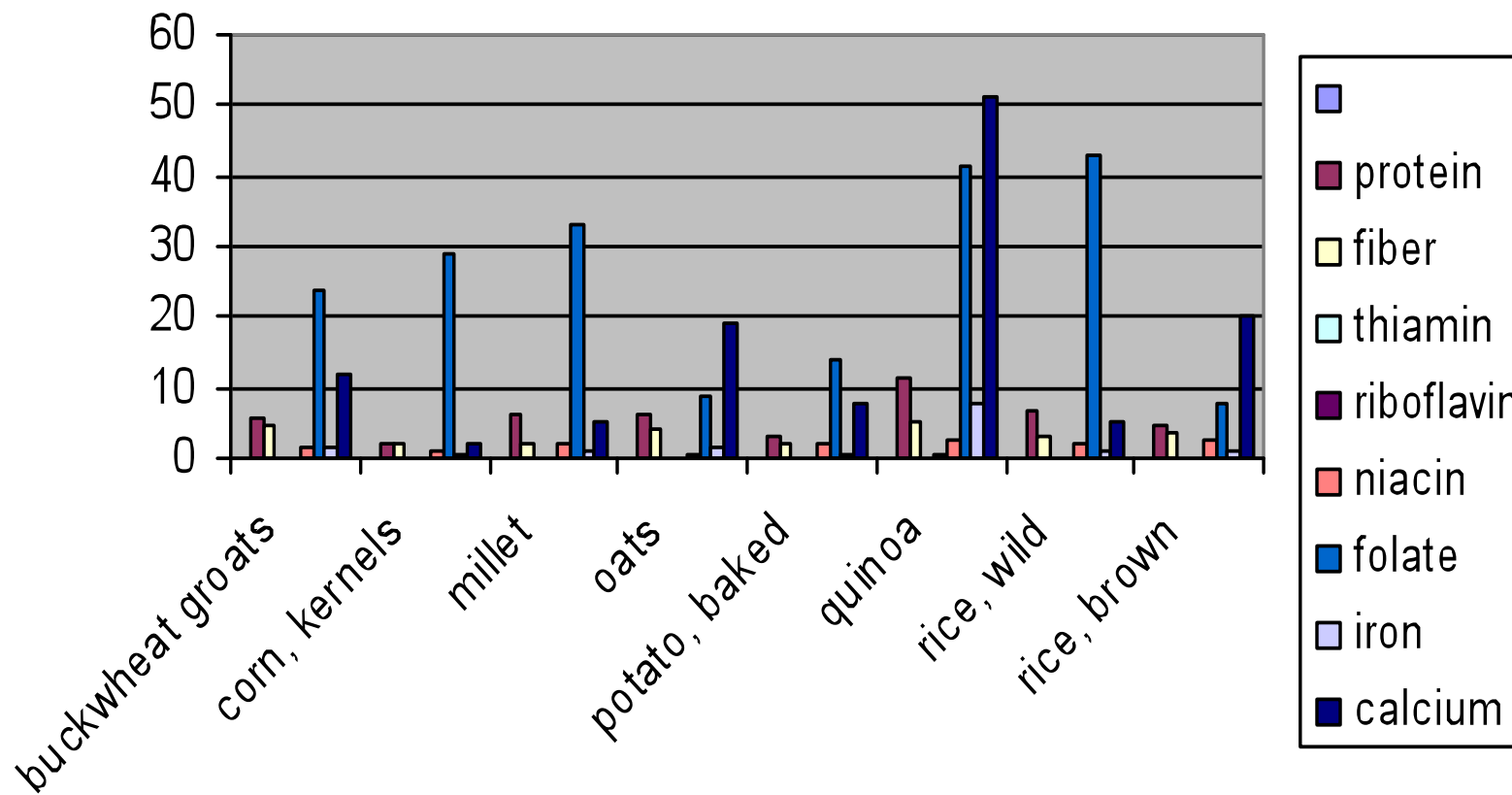


Grain Solutions: *Teff*

- “Woman’s Grain”
- High in:
 - *Calcium*
 - *Protein*
 - *B-Complex*
 - *Fiber*
- Uses:
 - *Side dish*
 - *Salads*
 - *Flour (baking)*



Comparison of Grains



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Other Solutions: Think Outside The Box!

- *Be creative!*
- *Think common!*
 - Nuts and seeds provide “good fats”
- *Think exotic!*
 - Yuca/cassava
 - Beans, lentils, and legumes provide good fiber and protein



Flour Solutions

These three are not as brittle or dry as the rice flours, and do not need as much sweetening or fat added to the mix:

- **Bean flours such as chickpea, lentil and navy bean:**
 - 1:1 ratio offers a distinct flavor with light texture
- **Teff:**
 - Denser and needs to be lightened; offers a nutty flavor
- **Sorghum:**
 - Denser and needs to be lightened; offers a stronger flavor



****Best Flour Mix: 1/3 brown rice, 1/3 chickpea, and 1/3 sorghum***



Practical Approaches to Remember...

- **Add slowly**

- Too much fiber too soon can cause gas, abdominal pain and bloating

- **Experiment with combinations**

- Use oats instead of breadcrumbs
- Use crushed nuts for pie crust and breading on meats and fish



- **Use nut spreads in place of butter in recipes**

- **Use olive or vegetable oils for cooking and baking**



Take Away Message

- *Addition of alternate grains to the gluten-free diet can:*
 - Increase fiber
 - Increase nutrient content
 - Decrease fat when using grains and whole flours in place of manufactured products

However...



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Dilemma of the Alternative Grains

Provide missing nutrients but possibility of cross-contamination.

- **Oats**

- Long history of research into potential contamination
- Result: development of several dedicated and certified gluten-free oat manufacturers

- ***What about other grains??***

- It was believed naturally gluten-free grains were gluten-free...



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Latest Research

Not all naturally gluten-free grains are, in fact, gluten-free.

- **Methods:**
 - 22 samples of products NOT labeled gluten free
 - R5 Elisa testing
- **Results:**
 - 59% were below level of detection of 5ppm
 - *32% of samples had evidence of contamination*
 - *Range from 25 ppm to 2925 ppm*

Thompson, Lee, Grace; JADA 2010;110:937-940



WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Product	Allergen advisory statement	Extraction 1	Extraction 2	Mean ppm
Millet flour	Yes	308	302	305
Millet flour	Yes	310	344	327
Millet grain	No	22	6	14
Millet grain	No	10	40	25
White rice flour	Yes	9	8	8.5
Buckwheat flour	No	66	64	65
Sorghum flour	Yes	238	230	234
Soy flour	No	3000	2850	2925
Soy flour	No	96	88	92



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



So, what is a person to do?

Simple answer: Add the alternative grains and remember to carefully read the ingredient list.

Check for...

- **Gluten-free notation**
- **Allergen listing**
- **Statement** on production practices or facility
 - *Example: Manufacturer in dedicated facility and/or on dedicated equipment.*
- **Fiber:** Average adult to have 25 grams per day
- **Fat:** Choose fat-free, low-fat, or 1% fat products; Saturated fat to be less than 7% of total calories; Consume no more than 300 mg cholesterol
- **Sodium:** 1,500 mg a day for average adult



WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Label reading is imperative to consumer confidence in making correct and healthy choices.



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



In Conclusion...

- Increase of heart disease associated with celiac disease
- Standard gluten-free diet is not heart healthy
- Use of “safe” gluten-free alternative grains increases fiber and other key nutrients
- Use recommendations from the American Heart Association to incorporate lifestyle changes into the gluten-free lifestyle:
 - Activity
 - Lower fat intake
 - Increase fiber intake



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



You ask, We answer.



① Do you have any tips on how to incorporate heart healthy recipes into a gluten and dairy-free diet?

- People with celiac disease need the calcium and protein source, but dairy is a saturated fat. Choose low fat or non-fat dairy products. Make wise choices, and be moderate with “treats.”

② I’ve noticed that palm oil is used in many gluten-free products. What is the heart health profile of palm oil versus other oils such as olive or canola?

- Palm oil is not as great as olive or canola. It is used in gluten-free products because it’s thick and makes for a better texture, helping the food to not be dry and crumbly.



Healthy Gluten-Free Living Thank you!



WEBINARS

www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



References

- Sanders, D. Letter to the editor, empowerment, political will, and a coeliac specialist dietitian in every hospital. *J Hum Nutr Dietet.* 2005, 18, 467-468
- Sverker, A. et al. Controlled by food – lived experiences of coeliac disease. *J Hum Nutr Dietet.* 2005, 18, 171-180
- Viljamaa, M. et al. Is coeliac disease screening in risk groups justified? *Alimentary Pharm & Therapeutics* 2005 (22), 4, 317-320
- Zarkadas, M. et al. The impact of a gluten free diet on a adult with coeliac disease: results of a national survey. 2006 *J Human Nutr Dietet.* 19, 41-49
- Lee, AR, Newman, J. Celiac Diet: Impacts on quality of Life *Journal of the American Dietetic Association*, 2003; 103:1533-5
- Green, PHR, Stavropoulos, S, Pangagi, S, Goldstein, S, McMahon, DJ, Absan, H, Neugut, AI. Characteristics of adult celiac disease in the USA: Results of a national survey. *The American Journal of Gastroenterology*, 2001; 96, 126-131
- Hallert C, Granno C, Hulthen S, Midhagen G, Strom M, Svensson H, Valdimarsson T. Living with celiac disease: controlled study of the burden of illness. *Scan J Gasteonterol* 2002; 37:39-42
- Hallert C, Sandlund O, Broqvist M,. Perceptions of health-related quality of life of men and women living with celiac disease: *Scand J Caring Sci*; 2003; 17: 301-307
- Midhagen G, Hallert C. High rate of gastrointestinal symptoms in celiac patients living on a gluten-free diet: Controlled study. *Am J Gastro*, 2003 vol 98. No 9: 2023 - 2026
- Mustalahti, K, Lohiniemi S, Collin P, Voulteenaho N, Laippala P, Maki M. Gluten-free diet and quality of life in patients with screen-detected celiac disease. *Eff Clin Pract* 2002; 5: 105-13



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



References

- Thompson T, Dennis M, Higgins LA, Lee AR, Sharrett MK. Gluten-free diet survey: are Americans with coeliac disease consuming recommended amounts of fibre, iron, calcium and grain foods? J Hum Nutr Dietet. 2005;18:163-169.
- Dickey, W, Kearney, N. Overweight in celiac Disease: Prevalence, clinical characteristics, and effect of a gluten free diet. Am J Gastroenterol 2006; 101;2356-2359
- Hopman EG, leCessie S, von Blomberg BM, Mearin ML. Nutritional management of the gluten-free diet in young people with celiac disease in The Netherlands. J Pediatr Gastroenterol Nutr. 2006 Jul;43(1);102-8
- Hallert C, Grant C, Green S, et al. Evidence of poor vitamin status in coeliac patients on a gluten-free diet for 10 years. Aliment Pharmacol Ther 2002;16:1333-1339
- USDA National Nutrition Database for Standard Reference Release 19 (2006), www.nal.usda.gov/fnic/foodcomp/data/SR19



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.



Thank you!

Questions? Comments? Feedback?

kvoorhees@CeliacCentral.org

Schar USA Feature:

Click on "Ask Anne" that will open the signup form and direct them to the "Ask Anne" section.

<http://www.schar.com/us/better-without/>



**www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012 . All rights reserved.**



One Final Reminder...

- **A recording of each Webinar** will be posted along with the **Webinar slides** within **72 hours** after the live Webinar ends. To download recorded Webinars and slides, visit the *Archived Webinars* page.
- **Participants must complete the survey and download the certificate before the date of the following month's webinar.**



www.CeliacCentral.org Restoring Health ... Reclaiming Lives.
National Foundation for Celiac Awareness 2012. All rights reserved.





WEBINARS

Save The Date!

Sunday, March 4th at 9pm ET/6pm PT

The Gluten-Free Link: ADHD, Autism & Celiac Disease
Marie-Nathalie Beaudoin, PhD, Training Director at
Bay Area Family Therapy & Training Associates

CeliacCentral.org/webinars/schedule/