Nutrition … Focus on Dietary Fiber

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For individuals diagnosed with celiac disease, removal of gluten from the diet allows the gastrointestinal tract to heal and to resume digesting and absorbing nutrients normally. Individuals with celiac disease who begin gluten-free diets often mention that their energy levels improve, they have fewer stomachaches, and their bowel habits normalize. Removing gluten from the diet takes time and practice. Individuals must learn how to read product labels carefully to be sure the products are gluten free, and to prevent cross-contamination with gluten-containing foods when preparing meals at home or when eating out.

After people with celiac disease learn how to remove gluten from their diet, another important goal becomes assuring that the overall gluten-free diet is healthy. Dietary fiber is a nutrient that requires particular attention in persons with celiac disease, especially if constipation or abdominal pain has not resolved when on the gluten-free diet. The elimination of gluten in the diet often results in a lower fiber diet, because many of the gluten-free breads, pastas, snacks, cookies and cakes are made from the refined flour of gluten-free grains. Refined flour is processed in a way that often destroys or removes dietary fiber. For example, the 100% whole wheat bread you may have eaten before being diagnosed with celiac disease provided 3 grams of dietary fiber per slice instead of the less than 1 gram of dietary fiber per slice that most refined flour gluten-free breads provide. Therefore, it may become important to find other sources of dietary fiber after beginning a gluten-free diet.

Dietary fiber is found in fruits, vegetables and grains, and not in dairy or meat products. There are different types of dietary fiber. Some types promote bowel regularity by absorbing water, which result in larger, softer and easier bowel movements. Other types of dietary fiber are beneficial because they help control blood sugar levels after meals and lower serum cholesterol levels.

Inulin (also called chicory root) is a natural dietary fiber added to food products to increase the fiber content. It is most often found in cereals, yogurt, breads, nutrition bars and granola. While this type of fiber may have health benefits, it will not help with bowel regularity.

There are many sources of dietary fiber available to persons on gluten-free diets. When buying grains, look for unrefined and less processed versions. Like their whole wheat gluten-free containing counterparts, unrefined gluten-free grains contain their own bran, the outer coating of the grain, which is high in dietary fiber. You can find gluten-free oat bran, unrefined corn meal, whole grain brown rice, whole grain amaranth, whole grain buckwheat, quinoa, whole grain millet, flax seed and chia seed; they are all rich sources of dietary fiber, particularly the form that assists with bowel regularity.

Listed below are some suggestions for eating a healthy amount of dietary fiber.

First, increase your fiber intake gradually. People who rapidly switch from low-fiber to high-fiber diets can experience unpleasant side effects, including feeling gassy or bloated, and having

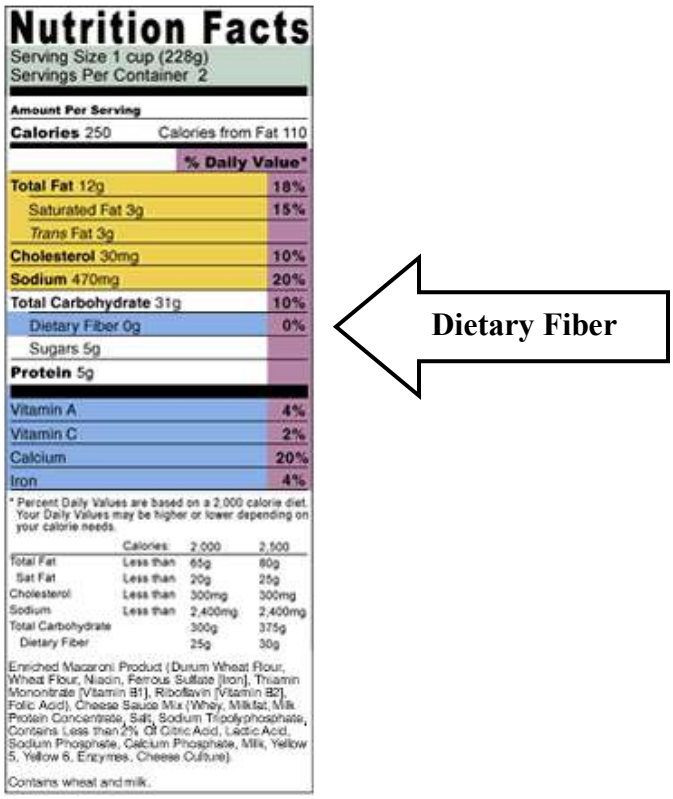
diarrhea. By increasing the fiber in your diet slowly, over several weeks, you can prevent these problems.

Second, be sure to drink enough fluid when eating more dietary fiber. Since fiber can absorb water, dietary fiber can actually become constipating if you do not drink enough liquid. The table below provides guidelines for how much liquid should be consumed by children of different weights when on a high-fiber diet.

Table 1: Recommended fluid intake on a high-fiber diet

Child's weight (pounds)	Total daily (24-hour) fluid intake (cups)
7	2
12	3 1/3
21	5
26	6
35	7
44	8
63	9 ½
99	10 ½

Third, learn to read Nutrition Facts Labels to determine how much dietary fiber is in a food product. Dietary fiber is listed under the carbohydrate section of the food label. However, since most dietary fiber is not absorbed, it does not contribute to the calorie content of the food. Therefore, do not worry that increasing the amount of fiber in your diet will increase the amount of calories you consume and your weight.



Fourth, consume the amount of dietary fiber that is recommended for persons of your age and sex. The table below, from the National Academy of Sciences Institute of Medicine, Food and Nutrition Board's *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acid*s, provides dietary fiber recommendations.

Table 2: Dietary Reference Intake (DRI) for Fiber in Children Less Than 19 Years

Age, gender, life stage group	Total fiber (grams/day)
Children	
1–3 years	19
4–8 years	25
Males	
9–13 years	31
14–18 years	38
Females	
9–13 years	26
14–18 years	26

Finally, find foods you like that contain good amounts of dietary fiber and incorporate them into your diet. The table below provides a sampling of high fiber foods. Other lists of high fiber foods can be found at the following sites: www.nal.uda.gov or www.nutritiondata.com.

Table 3: High-fiber Foods

Food	**Quantity**	**Dietary Fiber (grams)**
Grains		
Buckwheat	½ cup cooked	3
Gluten-Free Oats, Rolled	½ cup cooked	
Millet	½ cup cooked	1.5
Quinoa	½ cup cooked	1.2
Rice, Brown	½ cup cooked	1.8
Beans		
Kidney Beans	½ cup cooked	5.6
Pinto Beans	½ cup cooked	7.6
Refried Beans (Pinto)	½ cup cooked	3
Nuts and Seeds		
Almonds	½ cup	5
Peanuts	½ cup	6.2
Pecans	½ cup	5.2
Pumpkin Seeds	½ cup	2.6
Sunflower Seeds	½ cup	7.1
Flax Seeds	3 tablespoons raw	7
Chia Seeds	3 tablespoons raw	6
Fruits		
Apple	1 medium	3.7
Apricots dried	½ cup	5.9
Banana	1 medium	2.8
Blueberries	½ cup	2
Grapes	20	1
Kiwi	1 medium	2.6
Orange	1 medium	3.1
Raisins	½ cup	3.3
Vegetables		
Green Beans	½ cup	4
Broccoli	½ cup	2
Carrots	½ cup	2.5
Green Peas	½ cup	4.4
Baked Potato with Skin	1 medium	2.4
Sweet Potato with Skin	1 medium	3.4
Tomato	1 medium	1.4
Specialty Products		
Nutrition Kitchen Golden Soybean Pasta	2 oz. dry	11

Ener-G Foods		
English muffin	1	4
High Fiber Loaf	1 slice	5
Seattle Hamburger bun	1	3
Seattle Hotdog bun	1	3
Enjoy Life Foods		
Cinnamon Raisin Crunch Granola	½ cup	3
Crunchy Flax with Chia	55 grams	5
Glutenfreeda Apple Almond Honey Granola	¼ cup	3
Glutino Fiber Bread	1 slice	2
Lara Bars	1 bar	3 to 5 (caution: 190 to 230 calories each)
Foods Alive Golden Flax Crackers	5 crackers	11
Seitenbacher Gluten-Free Muesli	2/3 cup	5
Udi's		
Harvest Crunch Muffins	1 muffin	4
Millet-Chia Bread	2 slices	5
Whole-Grain Hamburger Bun	1 bun	6
Whole-Grain Dinner Roll	1 roll	3
Whole-Grain and Mighty Bagels	1 bagel	3
Bakery on Main		
Extreme Trail Mix Granola Bars	1 bar	2
Strawberry Shortcake Instant Oatmeal (many flavors available)	1 packet	5
Bonnievilles Power Cookies	1 cookie	3 (260 to 280 calories)
Three Bakers		
Whole Grain Hamburger Bun	1 bun	7
7 Ancient Grains Bread	2 slices	7
Pizza Crust	1/3 of a crust	4
Ancient Harvest Quinoa Pasta	2 oz dry	4
Mary's Gone Crackers	13 crackers	3
Sticks & Twigs Pretzels	15 pretzels	4
Rudi's Plain Tortillas	1 tortilla	5
Nature's Path Whole O's Cereal	¾ cup	3

CrunchMaster Multi-Grain Crackers	16 crackers	3
Schar		
Plain Bagels	1 bagel	6
Deli-Style Bread	1 slice	3