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\*Pharmacy Today Annual Over-the-Counter Product Survey, February 2008. The #1 Pharmacist Recommended OTC Award does not indicate Pharmacy Today or APhA endorsement of any product or service.



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## Celiac Disease & Diabetes

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Patients with diabetes and celiac disease present educators with many challenges. Teaching tight glucose control is optimal, but patients with both conditions face multiple food restrictions, which can be overwhelming. The goal of this article is to provide reliable nutrition information to meet the challenge of selecting foods for these two diseases.

### Celiac Disease

Like diabetes, celiac disease is an autoimmune genetic disorder. It causes the villi of the small intestine to react in the presence of gluten. When patients with celiac disease eat foods containing gluten, their immune system reacts by damaging the villi, which reduces the ability to absorb nutrients. Since the damage to the small intestine reduces the uptake and transport of nutrients, celiac disease is ultimately a disease of malabsorption. If left untreated, it can lead to malnutrition, osteoporosis, anemia, intestinal lymphoma, and other associated illnesses. The disease is also known as celiac sprue, nontropical sprue, and gluten-sensitive enteropathy. Patients with celiac disease have a permanent sensitivity to gluten, a protein from wheat, rye, and barley. Many can tolerate pure oat products, however, there is controversy about including oat products in a gluten-free diet because of possible cross contamination during harvesting and processing. The only treatment for celiac disease is lifelong avoidance of gluten-containing foods and products. Hidden sources of gluten can include medications and over-the-counter products. Once gluten is eliminated, the small intestine begins to heal and overall health improves.

### Symptoms of Celiac Disease

Celiac disease symptoms may include: abdominal bloating and pain, anemia, chronic and recurrent diarrhea, delayed growth, gas, pale, foul smelling or fatty stools, tooth discoloration, and skin rash. Patients with diabetes and celiac disease may suffer erratic swings in glucose levels or unexplained hypoglycemia due to malabsorption.

### Prevalence of Celiac Disease In Diabetes

In the United States approximately 2 million people have celiac disease, or about 1 in 133 people. According to the American Diabetes Association (ADA), there seems to be a link between type 1 diabetes and celiac disease. About 1 in 20 people with type 1 diabetes also has celiac disease. This high prevalence among people with type 1 diabetes means diabetes educators should be aware of the symptoms of the disease. The ADA recommends that children diagnosed with type 1 diabetes should be tested for celiac disease if growth failure, failure to gain weight, or gastroenterological symptoms occur.

### NIH Recommendations

The National Institute of Health (NIH) identified six key elements in the management of celiac disease:

- ◆ Consultation with a registered dietitian familiar with celiac disease
- ◆ Education about the disease
- ◆ Lifelong adherence to a gluten-free diet
- ◆ Identification and treatment of nutritional deficiencies
- ◆ Access to an advocacy group
- ◆ Continuous long-term follow-up by a multidisciplinary team

### Go Gluten-Free

Avoiding gluten-containing products is crucial to treatment. Teach patients to:

- (1) Take advantage of resources. Connect patients with celiac disease organizations to help reduce feelings of hopelessness and isolation. Support groups provide practical information about how to live with the disease, where to purchase gluten-free products, how to prepare meals, and how to dine out safely.
- (2) Read ingredient labels carefully and watch for ingredients made from wheat, rye, triticale (cross between wheat and rye) or barley. Wheat can be found under various names such as bulgar, couscous, durum, graham flour, kamut, semolina, spelt, emmer, or farro. Avoid malt, it is made from barley.



## Mark Your Calendar!

**American Association of Diabetes Educators**  
 35th Annual Meeting & Exhibition  
 ♦ August 6-9, 2008  
 Washington, DC  
[www.diabeteseducator.org](http://www.diabeteseducator.org)

## The WebMaster

### Manufacturers of Gluten-Free Products

- ♦ Authentic Foods  
[www.authenticfoods.com](http://www.authenticfoods.com)
- ♦ Ener-G Foods, Inc.  
[www.ener-g.com](http://www.ener-g.com)
- ♦ Gluten free  
[www.glutenfree.com](http://www.glutenfree.com)
- ♦ Glutino  
[www.glutino.com](http://www.glutino.com)

### Celiac Resources

- ♦ American Celiac Society-Dietary Support Coalition  
[www.americancelicsociety.org](http://www.americancelicsociety.org)
- ♦ Celiac Disease Foundation  
[www.celiac.org](http://www.celiac.org)
- ♦ Celiac Sprue Association/USA Inc  
[www.csaceliacs.org](http://www.csaceliacs.org)
- ♦ National Digestive Diseases Information  
[www.digestive.niddk.nih.gov](http://www.digestive.niddk.nih.gov)
- ♦ Gluten Intolerance Group of North America  
[www.gluten.net](http://www.gluten.net)
- ♦ National Foundation for Celiac Awareness  
[www.celiaccentral.org](http://www.celiaccentral.org)

### Celiac Books

- ♦ Celiac Disease Nutrition Guide  
By: Tricia Thompson, MS, RD  
[www.eatright.org](http://www.eatright.org)
- ♦ Complete Food and Nutrition Guide  
By: Roberta Duyff, MS, RD, FADA, CFSS  
[www.eatright.org](http://www.eatright.org)
- ♦ The Essential Gluten-Free Restaurant Guide: How and Where to Eat Gluten-Free  
By: Triumph Dining  
[www.triumphdining.com](http://www.triumphdining.com)
- ♦ Gluten-Free Diet:  
A Comprehensive Resource Guide  
By: Shelly Case, RD  
[www.glutenfreediet.ca](http://www.glutenfreediet.ca)



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(3) Avoid foods which may contain gluten:

- ♦ Breads (unless gluten-free), bread coatings, croutons, and communion wafers
- ♦ Beverages e.g. beer and drink mixes containing malt
- ♦ Broth and soup bases made with thickeners
- ♦ Some candies, such as licorice, some chocolates and chewing gums
- ♦ Cereal and pasta made with wheat products
- ♦ Hydrolyzed vegetable protein (HVP)
- ♦ Marinades, soy sauce
- ♦ Processed luncheon meats
- ♦ Sauces or gravies with thickeners containing food starch and modified food starch
- ♦ Imitation seafood bound with starches
- ♦ Self-basting poultry
- ♦ Seasonings and flavorings
- ♦ Some drugs and over-the-counter medications
- ♦ Some nutritional and herbal supplements, vitamins, and mineral supplements

*Source: Gluten Intolerance Group of North America*

It is essential for patients to read the nutrition labels for carbohydrate content per serving. Many gluten-free products contain more carbohydrates than comparable products with gluten.

- (4) Learn about gluten-free substitutions for cooking and baking. For example, when using starch substitutions for thickening, one tablespoon of flour equals:
- ♦ 1/2 tablespoon cornstarch, potato starch or arrowroot starch
  - ♦ 1 tablespoon rice flour
  - ♦ 2 tablespoons quick cooking tapioca

(5) Be aware of hidden sources of gluten.

- ♦ Gluten may be present in the glue on stamps and envelopes. It would be prudent to moisten with a sponge rather than licking them.

### Glucose Control

When starting a gluten-free diet, patients with diabetes may experience unexplained swings in blood glucose. This is due to gradual healing of the small intestine caused by diet change which may improve food absorption. A second reason blood glucose may rise is flours and starches used in gluten-free foods are lower in fiber. Many gluten-free products are also higher in carbohydrates than what most people recognize. Switching diets may trigger higher blood glucose levels. As the small intestine heals, it is not uncommon for patients to gain weight because of better food absorption. Patients need counselling to anticipate some weight gain and to be ready to increase physical activity and possibly adjust diabetic medications.

### Summary

Since celiac disease is prevalent in the type 1 diabetes population, diabetes educators should be familiar with organizations and advocacy groups. Caring for these patients involves teaching about the foods they need to avoid as well as introducing them to gluten-free substitutes they can enjoy. Monitor the transition to gluten-free products to protect against swings in blood glucose. A skilled practitioner can teach people with celiac disease and diabetes healthy food selections, label reading and other strategies to help manage these two autoimmune diseases.

### References:

1. Kupper, C, Higgins LA. Combining Diabetes and Gluten-Free Dietary Management Guidelines. *Practical Gastroenterology*. 2007 March: 68-83.
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3. Jackson K. Going Gluten-Free, A Resource Guide. *Today's Diet and Nutrition*. 2007 March/April: 16 - 23.
4. <http://www.diabetes.org/type-1-diabetes/celiac-disease.jsp>
5. NIH Consensus Development Conference Statement June 28-30, 2004. <http://consensus.nih.gov/2004/2004celiacdisease118html.htm>
6. <http://digestive.niddk.nih.gov/ddiseases/pubs/celiac/index.htm>

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