

The University of North Texas
Dining Services
White Paper: A Gluten-free Diet

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What is a Gluten-Free Diet?

A gluten-free diet does not contain proteins from the grains wheat, barley, or rye (1). All varieties of wheat such as: spelt, kamut, einkorn, emmer, wheat starch, wheat bran, wheat germ, cracked wheat, and hydrolyzed wheat protein should be avoided. All variations of barley including malt, malt flavoring, and malt extract should also be avoided in a gluten-free diet. In addition, crossbred varieties of these grains should be avoided. Common grains that are considered safe and could be substituted for unsafe gluten-containing grains include: corn, buckwheat, amaranth, millet, quinoa, rice, wild rice, and sorghum. Under the Food Allergen Labeling and Consumer Protection Act of 2004, foods containing wheat should be clearly stated on the food list by either listing the word “wheat” in the ingredients list or a separate “Contains wheat” statement (2). A gluten free diet, except for the exclusion of gluten containing foods, should follow the same format as the US Department of Agriculture’s (USDA) MyPyramid which provides recommended daily amounts from the grains, fruit, vegetable, meat and beans, and milk groups individualized to a person’s age, gender, and activity level (3).

Common Allergens

There are eight common food allergens identified by the Food and Drug Administration (FDA) as major food allergens. In 2006, congress passed the Food Allergen Labeling and Consumer Protection Act of 2004 that requires food labels to clearly identify the source of the ingredient that contains any of the eight common food allergens. These eight allergens are milk, eggs, fish, shellfish, tree nuts, peanuts, wheat, and soybeans. Although there are over 160 foods that can cause an allergic reaction in people, these are the most common. These eight foods make up 90 percent of food allergic reactions (2).

Who Benefits from a Gluten-Free Diet?

Although some adopt a gluten-free diet because of health conscious reasons, the majority of people that follow of a gluten-free diet are those with Celiac disease, gluten intolerance, or

wheat allergy (4). There is a strong demand for gluten-free products. In 2008, more than 1,000 new gluten-free products and beverages were introduced, and sales grew by an average of 28% over the past five years (5).

Celiac Disease and a Gluten-Free Diet

Celiac disease is an autoimmune disorder in which specific proteins in wheat, rye, and barley (gluten) cause damage to the small intestine. Celiac disease is associated with maldigestion and malabsorption of nutrients, vitamins, and minerals in the gastrointestinal tract (6). According to the Celiac Disease Foundation, 1 out of 133 people in the US have Celiac disease and it is estimated that 97% of those with Celiac disease go undiagnosed (7). In many cases, Celiac disease is misdiagnosed as symptoms are confused with other conditions such as Irritable Bowel Syndrome or peptic ulcers (8). Symptoms are highly variable. Classical symptoms in adolescents and adults include diarrhea, constipation, weight loss, weakness, short stature, flatus, abdominal pain, and vomiting (9). In the US, adult presentations of the disease are more common than children and females are diagnosed predominately over males. Testing for Celiac disease is possible. The initial test uses a blood sample called a Celiac Panel in which the individual must be eating gluten at the time of the test. An additional biopsy, a small sample of tissue, of the small intestine is used to confirm a diagnosis of Celiac disease. The only treatment for Celiac disease is a gluten-free diet (10). For most, a gluten-free diet will alleviate symptoms, heal damage done to the small intestine, and prevent further damage. Without treatment, a person with Celiac disease can develop osteoporosis, anemia, and cancer. The gluten-free diet is a lifelong requirement for people with Celiac disease. Quality of life has been shown to improve in persons with Celiac disease who adopted a gluten-free diet (6). A gluten-free diet requires a completely new look at eating, a change in lifestyle, and diligence. The following are some examples of a gluten-free diet:

Allowed Foods		
Amaranth	Legumes	Seeds
Arrowroot	Millet	Sorghum
Buckwheat	Nuts	Soy
Cassava	Potatoes	Tapioca
Corn	Quinoa	Teff
Flax	Rice	Wild rice
Indian rice grass	Sago	Yucca
Job's tears		
Foods To Avoid		
Wheat		Barley
<ul style="list-style-type: none"> including einkorn, emmer, spelt, kamut wheat starch, wheat bran, wheat germ, cracked wheat, hydrolyzed wheat protein 		rye
		Triticale (a cross between wheat and rye)
Other Wheat Products		
Bromated flour	Graham flour	Self-rising flour
Durum flour	Phosphated flour	Semolina
Enriched flour	Plain flour	White flour
Farina		
Processed Foods that May Contain Wheat, Barley, or Rye		
Bouillon cubes	French fries	Seasoned tortilla chips
Brown rice syrup	Gravy	Self-basting turkey
Candy	Imitation fish	Soups
Chips/potato chips	Matzo	Soy sauce
Cold cuts, hot dogs, salami,	Rice mixes	Vegetables in sauce
Sausage	Sauces	
Communion wafers		

Source: Thompson T. *Celiac Disease Nutrition Guide*, 2nd ed. Chicago: American Dietetic Association; 2006. © American Dietetic Association.

Barriers to a Gluten-Free Diet

A gluten-free diet can be very difficult to adhere to at first. The diet takes special adjustments in order to eliminate gluten from normal eating habits. Some barriers that exist when planning a gluten-free diet are processed foods and cross contamination. Gluten can be present in other ingredients found in processed foods such as soy sauce or caramel color. It is important to make sure the ingredients in processed foods are free of gluten. Cross contamination can occur if gluten-containing foods are prepared in the same location as gluten-free foods. For example, if onion rings are fried in the same oil as French fries, the French fries could be contaminated with gluten from the breading of the onion rings. Make sure to store gluten-free products in separate, labeled, and covered containers.

Gluten-Free at UNT

A gluten-free diet at a large university like UNT is possible, but it takes cooperation at every level. Students need to be well educated on reading food labels and be familiar with common foods that are by nature gluten-free like fruits, vegetables, and meats. All foods in the resident dining halls are labeled with a nutrition card which tells the students if the food contains wheat. These foods should be avoided because they contain gluten. Additionally, students should be aware that some prepared meats and casseroles may contain gluten. If a student is unsure about a food, he/she should ask the manager of that facility. Maple Hall offers gluten-free options upon request and additionally, students can request in advance that an entrée be prepared "plain" to avoid gluten. Managers in cafeterias should be educated in special requirements for students requesting a gluten-free meal and should be helpful and considerate to the student to address his/her concerns or questions. Given that a person with Celiac disease uses their diet to relieve symptoms of the disease, it is imperative that foodservice operations at UNT consider the special needs of these students of highest importance.

Students who want additional information about a gluten-free diet can visit the dietitian on staff at the Wellness Center.

The Role of the Student

Communication is the most important factor in preparing a gluten free meal. The customer, either a student or faculty member, should communicate with the staff at the cafeteria about their condition and special requirements. Using statements like “I have a severe reaction to wheat” or “I have an allergy to wheat” will provide the staff with more easily understandable terms than using statements about “gluten” or “celiac disease” (11). It is important for the customer to identify his or her self first and their special dietary needs, so that the proper steps can be taken to ensure a pleasant dining experience. Once the customer has identified the need for a special diet, additional questions should be asked to identify the ingredients in certain foods. Asking questions about the types of sauces used or if the same frying oil is used for multiple foods are ways to identify a source of wheat. Eating in the cafeterias during slower hours such as before 12 PM and after 2 PM will give the managers more time to devote to the issue at hand. During the peak hours of lunch and dinner, the managers will be dealing with the fast paced environment of dining services and may not be able to promptly meet your requests. The best approach for a customer requiring a gluten-free diet is to ask for the food item to be prepared separately on a thoroughly clean surface with no additional sauces, flavorings, or spices. Amaranth, arrowroot, cassava, chickpeas, Job’s tears, lentils, quinoa, and saffron are all naturally occurring gluten-free foods that a customer could add to their meals. If a problem occurs, the customer should speak to a manager of the cafeteria as soon as possible and work with the staff to solve the problem. The cafeteria staff is there to make sure everyone has a pleasant and enjoyable dining experience. This includes students and faculty with special dietary needs.

The Role of Dining Services

Training is important in preparing and providing gluten-free foods. Everyone involved in the food preparation from chef to server should have some training information and education on gluten-free food preparation. The staff in each cafeteria should be up front with the ingredients used in food preparation and answer questions honestly, directing the student to someone that will be able to answer their questions if needed. It is important that someone is available to assist the student with any questions they may have and to provide alternative food options if possible. Preparation of gluten-free foods should always be considered. If there is any doubt that cross contamination could have occurred, a separate product should be prepared after all surfaces and utensils have been thoroughly cleaned (11). Managers should oversee the food preparation in order to correct any errors that occurred by the kitchen staff. Any changes to the ingredient list of the menu should be noted and proper information should be provided. For example, if a soy sauce containing wheat is used in a recipe and the nutrition card does not list the food as “containing wheat”, then proper action should be taken to inform the students of the change in ingredient. Any new substitution or new ingredient added to a recipe should be “flagged”, so that the needed changes can be made to provide the students with the correct, up to date information. Managers in Maple Hall order gluten-free products such as rice flour, corn flour, flax seed, and gluten-free pastas to provide alternate sources of grains to the student.

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