

## Make Mine Gluten –Free

FCE Food and Nutrition Lesson 2013

### Goal of lesson:

Participants will gain:

- An understanding of gluten sensitivity, celiac disease and their symptoms
- An understanding of gluten and some gluten-free foods
- An understanding of some gluten-free recipes

### Materials needed to present lesson:

- Variety of bread and pasta food labels.
- Copies of gluten-free recipes.
- Examples of gluten-free foods found at the grocery store.
- Plates and spoons for tasting the “Apple Crisp.”

**Gluten**



**Free**

dreamstime.com

The gluten–free diet? We hear and see this is in the news on a daily basis. Gluten intolerance affects 1 in every 300 people in the United States. Oprah Winfrey recently announced she was consuming a gluten-free diet. In 2008, the media temporarily gave up gluten as part of a 21-day “cleanse diet.” Over the past decade, going gluten-free has been touted as a way to boost health and energy, lose weight, and to cope better with ADHD, autism, headaches and other conditions.

Who really needs this diet? Long before its popularity, the gluten-free diet was a medical staple – a proven treatment for celiac-disease. Perhaps someday, new research will show that gluten-free diets will benefit other health problems. People have the mindset that gluten-free diets are healthier but this is not the case. The diet is hard to follow and may pose nutritional drawbacks when people have no reason medically to be on it. However, the diet is essential for patients who are gluten-sensitive, also known as gluten intolerance, or people with celiac disease.

So what is gluten sensitivity, also known as gluten intolerance? This is a range of disorders, including celiac disease and wheat allergy, in which gluten has an adverse effect on the body. It can be defined as a non-allergic and non-autoimmune condition in which the consumption of gluten can lead to symptoms similar to those observed in celiac disease or wheat allergy.

Celiac disease cannot be cured, but it can be controlled through the diet. This genetic disorder may occur in children as well as adults. Approximately one in 133 people may have the disease but 97% remain undiagnosed. This means that almost three million Americans have celiac disease and only about 10,000 know they have it. The small intestines lose their ability to absorb nutrients in food, leading to malnutrition and other complications

One of the grains people with this disease can eat is flour processed from food sorghum varieties. This grain is a wholesome, hearty grain that provides fiber and has a mild flavor that won't compete with the flavors of other food ingredients.

What are the symptoms? Symptoms may include bloating, abdominal discomforts, pain, or diarrhea or it may be present with headaches and migraines, lethargy and tiredness, attention-deficit disorder and hyperactivity, muscular disturbances, as well as, bone and joint pain. Left untreated, people can develop further complications such as osteoporosis, thyroid disease and cancer.



So what is gluten? Gluten is a protein found in foods processed from wheat and related species, which include barley and rye. It gives elasticity to dough helping it to rise and to keep its shape. It is found in bread, pasta, but may be hidden in many other foods such as cold cuts, salad dressings, beer, some medicines, vitamins, and even glue on stamps. Therefore, it is essential that you check with the pharmacist to make sure that each medication you are taking is gluten-free.

Gluten also traps starch between its layers and as the bread bakes, the starch gelatinizes. Together the gluten and gelatinized starch gives bread its structure and texture. Flours made from hard wheat contain the most protein and so can develop the most gluten. Durum wheat is the hardest of all the wheat, meaning that it's highest in protein. The harder the wheat, the more gluten it will have. Dough made from semolina is high in protein, which gives it the resiliency and strength to stand up to the mechanical pasta-making process and to hold its shape during cooking.

Other types of grains can produce gluten, but not to the extent wheat can. Rye, the next best gluten producer, is a poor second to wheat. Breads made solely from low-gluten flours will be dense and heavy. As a result, most raised breads contain at least some wheat flour.

Gluten sensitivity can develop at any point in life. It develops as a consequence of genetics, meaning that it runs in families. Blood tests can help your doctor find out if you have the disease.

Gluten-free foods are dietary foods consisting of or made only from one or more ingredients which do not contain wheat, rye, barley, oats and the gluten level does not exceed 20mg/kg in total, based on the food as sold or distributed to the consumer and or consisting of one or more ingredients from wheat such as durum wheat spelt, rye, barley, oats or their crossbreeds.

Grocery stores today have half to an entire aisle devoted to gluten-free products. Perhaps some of you have looked at these foods in the grocery store. (One could show some products found at the grocery store)



In summary, adjusting to a gluten-free diet can seem overwhelming and greatly affect quality of life at first. However, a dietitian, doctor and support group can help those newly diagnosed with menu planning, shopping, and even dining out. Over time, this change in lifestyle becomes second nature.

- Pass out bread and pasta labels for participants to look at the kind of flour listed on the ingredient label.
- Serve the apple crisp.

**Sources used:** Womenshealth.gov

Celiac Disease Foundation

Nebraska Extension



Following are some recipes made with sorghum flour suitable for someone with celiac disease. Though gluten is commonly associated with wheat, foods made with barley and rye must also be avoided. The use of oats is questionable at this time. For a comprehensive list of all the grains and flours currently considered consistent, questionable or not consistent with a gluten-free diet, check on the CSA website at <http://csaceliacs.org>.

In substituting sorghum flour for what flour in recipes, a combination of flours is often used. It is possible to purchase already-mixed all-purpose gluten-free baking flours. Or you can mix your own—following are three substitution possibilities which include sorghum flour. Because sorghum does not contain gluten, a “binder” such as xanthan gum, must be added when gluten is needed to create a successful product. Add ½ teaspoon xanthan gum per cup of sorghum flour for cookies and cakes or one teaspoon per cup of flour for breads. Other ingredients used as binders in some recipes include egg whites, unflavored gelatin, cornstarch and guar gum.



**Cookie Mix** *(makes 2 cups)*

- ¼ cup chickpea flour
- 1 ¾ cup sorghum flour
- ¼ cup sweet rice flour

**Four Flour Bean**

**General Baking Mix** *(makes 3 cups)*

- ⅔ cup garfava bean flour
- ½ cup sorghum flour
- 1 cup cornstarch
- 1 cup tapioca starch/flour

**Carol’s Sorghum Blend**

- 1 ½ cups sorghum flour
- 1 ½ cups potato starch or cornstarch
- 1 cup tapioca flour

Whisk together and store, tightly covered, in a dark, dry place.

\*Sources: CSA website

*1,000 Gluten-Free Recipes* by Carol Fenster

**Storing Sorghum Flour:**

Store sorghum flour in moisture-vapor-proof, air-tight glass or metal containers or plastic freezer bags. Keep in a cool, dry, dark place if it will be used within a few months; store in a refrigerator or freezer for longer storage.



## Pancakes

*This recipe was adapted by Mary Schluckebier, Home Economist, for Twin Valley Mills, LLC and is provided courtesy of Twin Valley Mills (<http://www.twinvalleymills.com>).*

2 cups sorghum flour  
3 teaspoons baking powder  
1 teaspoon sugar  
 $\frac{3}{4}$  teaspoon salt  
 $\frac{1}{2}$  cup non-fat dry powdered milk (or powdered buttermilk)\*  
1 tablespoon corn oil  
3 eggs  
1  $\frac{1}{2}$  cups water

Combine dry ingredients. Stir in eggs, oil and water; mix well. Drop by spoonfuls onto a hot, 375°F griddle until golden brown, turning once. Makes about 20 4-inch pancakes. Hints: If you like thinner pancakes, add more water or some applesauce.

*\*Mary states, "They are just fine leaving out the milk and not substituting anything in its place. It may mean adjusting the amount of water to provide the thickness of batter for thick or thin pancakes."*

## Apple Crisp

*This recipe is provided courtesy of Twin Valley Mills, LLC (<http://twinvalleymills.com>)*

4 cups sliced apples  
 $\frac{1}{2}$  teaspoon cinnamon

Slice apples into an 8x8-inch greased pan. Sprinkle with cinnamon.

### **Crumble topping:**

1 stick (1/2 cup) margarine  
 $\frac{3}{4}$  cup of sugar  
 $\frac{3}{4}$  cup sorghum flour

Bake at 350°F for approximately 1 hour or until topping turns light brown.

NOTE: For the crumble topping, you may substitute butter-flavored Crisco and brown sugar.



## Sorghum Pie Crust

*This recipe was adapted by Verleen Vorderstrasse, for Twin Valley Mills, LLC and is provided courtesy of Twin Valley Mills (<http://twinvalleymills.com>).*

1 cup sorghum flour  
⅓ cup shortening  
½ teaspoon salt  
1 teaspoon xanthan gum  
2-3 tablespoons of water

Mix flour, salt, xanthan gum and shortening as you would the dry ingredients in any other pie crust. Add water and pat into 9-inch pie plate. If complete pie is not baked, bake the crust in oven at 400°F until brown (8 to 10 minutes).

## Crumb Topping for Fruit Pie

¾ cup sorghum flour  
⅓ cup brown sugar  
⅓ cup margarine

Mix until crumbly. Put on top of pie in single pie crust.



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