



UNIVERSITY *of* MARYLAND
MEDICAL CENTER

*Better or Worse? A Look at the Nutrition
of Gluten-Free Specialty Products
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Gluten free foods over time...

20+ years ago

poor taste and texture

not available in the grocery store

dry, crumbly bread, must be toasted

expensive

all rice and starch based

10+ years ago

General Mills introduced Chex cereal and Betty Crocker cake mixes

Udis introduces bread that does not need to be toasted

Today

better taste, more availability and improved nutritional value however cost remains significant barrier

Nutritional Consequences of the GFD

The GFD can be missing important nutrients needed for optimal health and wellness

Lacks fiber

Lacks iron

Lacks B vitamins- folate, niacin, B12

Lacks calcium

Phosphorous

Zinc

Gluten-free products

- Traditionally used starches not whole grain flours
- Typically use white rice, potato, tapioca and corn
- Additional ingredients
 - Added oils and fat (commonly palm oil for texture)
 - Added sugar
 - Added protein (soy, eggs, whey protein)
 - Added gums for stability and moisture (guar, xanthum, cellulose)

Nutrition Deficiencies Lead to:

Iron deficiency anemia

- *Supplementation is frequently required*
- *Iron rich foods should be included*

Reduced bone mineral density

Constipation

- *Change in diet, low fiber from high fiber can cause constipation: abdominal pain, cramping, bloating*
- *Most Americans do not get enough dietary fiber (recommended amounts = 21-38 grams/day)*
 - usual intake averages only 11-15 g per day
 - Gluten Free Diets average less than 6 g/day



- Many gluten free foods are not enriched or fortified as their wheat counterpart

- thiamin, riboflavin, niacin, folic acid, and iron

- Weight gain on GFD due to high fat, sugar and calorie content

Better absorption and healing of the intestine

Patients feel better, and therefore eat more

Higher calorie food items on the gluten-free food, i.e. packaged, processed foods

“Portion distortion” - patients who were undiagnosed were often able to eat larger portions without gaining weight

GFD: Recommendations for Improvement

Selecting natural gluten free foods instead of reliance of gluten free processed foods

Colorful fruits and vegetables = vitamins, minerals, phytonutrients and antioxidant

Labeled gluten free whole grains = fiber, B vitamins, iron

Look for amaranth, buckwheat, millet, oats, quinoa, sorghum, teff, whole corn, and wild rice.

Lean proteins sources, nuts and seeds and legumes and beans

Low fat or non-dairy alternatives = Vitamin D and calcium

Heart healthy fats = omega-3 fatty acids

GFD: Recommendations for Improvement

Three servings of whole/enriched cereals and pseudo (oats, brown rice and quinoa) positively impacted the nutrient profile of the diet, increasing thiamin, riboflavin, niacin, folate, iron and fiber in the diet.

Three serving/day of low-fat or nonfat dairy or calcium and vitamin D fortified non-dairy foods.

A daily gluten free age-sex specific multivitamin/mineral supplement may be advised. Periodic blood test for iron, zinc, B vitamins, Vitamin D and/or calcium

Solution: Use the alternative grains

Surveys have found that adults with CD on a GFD consume less than recommended amounts of:

Fiber	Calcium	Iron	Folate & B vitamins
Buckwheat	Amaranth	Quinoa	Amaranth
Brown rice	Quinoa	Amaranth	Millet
Amaranth	Teff	Teff	Teff
Quinoa		Millet	Quinoa

Look for Nutrition Facts

Nutrition Facts

Serving Size 4 oz. (113g)
 Servings Per Container 4

Amount Per Serving

Calories 280 **Calories from Fat** 130

% Daily Value*

Total Fat 14g **22%**

Saturated Fat 3.5g **18%**

Trans Fat 2.5g

Cholesterol 120mg **40%**

Sodium 640mg **27%**

Total Carbohydrate 13g **4%**

Dietary Fiber 1g **4%**

Sugars 0g

Protein 24g

Vitamin A 2% • Vitamin C 2%

Calcium 2% • Iron 6%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories	2,000	2,500
Total Fat	Less Than	65g	80g	
Saturated Fat	Less Than	20g	25g	
Cholesterol	Less Than	300mg	300 mg	
Sodium	Less Than	2,400mg	2,400mg	
Total Carbohydrate		300g	375g	
Dietary Fiber		25g	30g	

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4



Food Labels

Nutrition Facts

15 servings per container
Serving size 1 Slice (34g)

Amount per serving
Calories 90

	% Daily Value*
Total Fat 1.5g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 15mg	5%
Sodium 130mg	6%
Total Carbohydrate 16g	6%
Dietary Fiber 1g	4%
Total Sugars 2g	
Includes 2g Added Sugars	4%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 12mg	0%
Iron 0mg	0%
Potassium 58mg	2%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

INGREDIENTS: WATER, **BROWN RICE FLOUR**, TAPIOCA FLOUR, ORGANIC AGAVE SYRUP, **WHOLE GRAIN SORGHUM FLOUR**, **WHOLE GRAIN MILLET**, DRIED WHOLE EGGS, XANTHAN GUM, EXTRA VIRGIN OLIVE OIL, **WHOLE GRAIN TEFF**, DRIED EGG WHITES, **WHOLE GRAIN QUINOA**, ORGANIC CANE SUGAR, MOLASSES, **WHOLE GRAIN AMARANTH**, CULTURED **BROWN RICE FLOUR**, YEAST, SEA SALT, ORGANIC CANE SUGAR VINEGAR, **WHOLE GRAIN BUCKWHEAT FLOUR**, ENZYMES.

Nutrition Facts

Serving Size 2 Slices (49g)
Servings Per Container About 7

Amount Per Serving

Calories 140 Calories from Fat 35

% Daily Value*

Total Fat 4g 6%

Saturated Fat 0g 0%

Trans Fat 0g

Cholesterol 0mg 0%

Sodium 260mg 11%

Total Carbohydrate 22g 7%

Dietary Fiber 2g 8%

Sugars 3g

Protein 4g

Vitamin A 0% • Vitamin C 0%

Calcium 2% • Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories: 2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4

Ingredients

- BEST BLEND (TAPIOCA & POTATO STARCH, **BROWN RICE & TEFF FLOUR**, MODIFIED TAPIOCA STARCH), WATER, NON-GMO VEGETABLE OIL (CANOLA OR SUNFLOWER OR SAFFLOWER), EGG WHITES, EVAPORATED CANE JUICE, TAPIOCA MALTODEXTRIN, TAPIOCA SYRUP, YEAST, FLAX SEED, XANTHAN GUM, SALT, BAKING POWDER (SODIUM ACID PYROPHOSPHATE, SODIUM BICARBONATE, CORN STARCH, MONOCALCIUM PHOSPHATE), CULTURED CORN SYRUP SOLIDS (NATURAL MOLD INHIBITOR), DRY MOLASSES, ENZYMES. **CONTAINS EGG**



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