



## Purpose

Gluten is the protein part of wheat, rye, barley, and other related grains. Some people cannot tolerate gluten when it comes in contact with the small intestine. This condition is known as celiac disease (sometimes called non-tropical sprue or gluten sensitive enteropathy).

Celiac disease is now clearly known to be genetically determined. In other words, if you or your close relatives have a certain gene, then it is more likely that you will get celiac disease some time in your life. Of great concern and interest is the fact that nine out of ten people with celiac disease do not know they have it. A simple blood test can give the physician the first clue to this disease.

In patients with celiac disease, gluten injures the lining of the small intestine. This injury can result in weight loss, bloating, diarrhea, gas, abdominal cramps, and/or vitamin and mineral deficiencies. When patients totally eliminate gluten from the diet, the lining of the intestine has a chance to heal.

## Gut Bacteria

The primary area of injury in celiac disease is the small bowel but there may be a relationship between what happens in the small bowel and the colon or large bowel. There are very large numbers of bacteria in the colon. Most of these are beneficial and actually confer health

benefits. When these good bacteria thrive, they suppress the bad bacteria, which are present in the colon. What has been found is that celiac patients, in fact anyone on a gluten-free diet, have an altered make-up of bacteria in the colon which favors the unwanted bacteria.

### **Prebiotic Plant Fiber**

A prebiotic is not a probiotic, which are beneficial bacteria taken by mouth. These probiotics are present in yogurt, other dairy products and pills. Prebiotics, on the other hand, are the necessary plant fibers that contain both oligofructose and inulin. These two fibers are the main nourishment for the good bacteria that reside in the gut. These fibers are rich in chicory root, Jerusalem artichoke, leeks, asparagus and others. Gluten containing wheat and barley also contain these prebiotics.

### **Health Benefits from Prebiotic Fibers**

There is now ample information in the medical literature to indicate that a prebiotic rich diet leads to demonstrable health benefits. These include:

- Increased calcium absorption
- Stronger bones and bone density
- Enhanced immunity
- Reduced allergies and asthma in infants and children
- A lower blood triglyceride level
- Appetite and weight control
- Lower cancer factors in the gut
- Other benefits, including an increased sense of well being

### **The Celiac Wheat-Prebiotic Dilemma**

Nature has played a trick on celiac people. Wheat and wheat products provide over 80% of the prebiotics that North Americans ingest. Yet, celiac patients must carefully avoid wheat, barley and rye. How do they then feed their good colon bacteria and get the health benefits, as outlined above? They must favor the other vegetables and fruits, as listed in the prebiotic section below. Additionally, they should consider a gluten free prebiotic supplement such as [Prebiotin](#).

### **Special Considerations**

Removing gluten from the diet is not easy. Grains are used in the preparation of many foods. It is often hard to tell by a food's name what may be in it, so it is easy to eat gluten without even knowing it. However, staying on a strict gluten-free diet can dramatically improve the patient's condition. Since it is necessary to remain on the gluten-free diet throughout life, it will be helpful to review it with a registered dietitian.

The person who prepares the patient's food must fully understand the gluten-free diet. Read food labels carefully:

- **Do not eat** anything that contains the following grains: wheat, rye and barley.
- At one time, **oats** were thought to contain some gluten. It has now become apparent, however, that oats frequently were processed in machines that also processed wheat. Most manufacturers no longer do this, although if there are any questions, a person should get reassurance from the manufacturer by mail, email or phone.
- The following **can be eaten** in any amount: corn, potato, rice, soybeans, tapioca, arrowroot, carob, buckwheat, millet, amaranth and quinoa.
- **Distilled white vinegar** does not contain gluten.
- **Malt vinegar** does contain gluten.

Grains are used in the processing of many ingredients, so it will be necessary to seek out hidden gluten. The following terms found in food labels may mean that there is gluten in the product.

- **Hydrolyzed Vegetable Protein (HVP)**, unless made from soy or corn
- **Flour** or **Cereal** products, unless made with pure rice flour, corn flour, potato flour or soy flour
- **Vegetable Protein**, unless made from soy or corn
- **Malt** or **Malt Flavoring**, unless derived from corn
- **Modified Starch** or **Modified Food Starch**, unless arrowroot, corn, potato, tapioca, waxy maize or maize is used
- **Vegetable Gum**, unless made from carob bean, locust bean, cellulose, guar, gum arabic, gum aracia, gum tragacanth, xantham or vegetable starch
- **Soy Sauce** or **Soy Sauce Solids**, unless you know they do not contain wheat

Any of the following words on food labels often mean that a grain containing gluten has been used.

- Stabilizer
- Starch
- Flavoring
- Emulsifier
- Hydrolyzed
- Plant Protein

The following are lists of various foods that do **not** have gluten, **may** have gluten and **do** contain gluten.

### Prebiotic Plant Fiber Oligofructose and Inulin

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Onion, garlic, leeks, Jerusalem artichokes, asparagus, chicory root, jicama, dandelion, banana, agave, jams, <u>Prebiotin</u>		Wheat, barley, rye

## Milk and Milk Products

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Whole, low fat, skim, dry, evaporated or condensed milk; buttermilk; cream; whipping cream; Velveeta cheese food; American cheese; all aged cheese such as Cheddar, Swiss, Edam and Parmesan	Sour cream, commercial chocolate milk and drinks, non-dairy creamers, all other cheese products, yogurt	Malted drinks

## Meat or Meat Substitutes

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
100% meat (no grain additives); seafood; poultry (breaded with pure cornmeal, potato flour or rice flour); peanut butter; eggs; dried beans or peas; pork	Meat patties; canned meat; sausages; cold cuts; bologna; hot dogs; stew; hamburger; chili; commercial omelets, souffles, fondue; soy protein meat substitutes	Croquettes, breaded fish, chicken loaves made with bread or bread crumbs, breaded or floured meats, meatloaf, meatballs, pizza, ravioli, any meat or meat substitute, rye, barley, oats, gluten stabilizers

## Breads and Grains

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Cream of rice; cornmeal; hominy; rice; wild rice; gluten-free noodles; rice wafers; pure corn tortillas; specially prepared breads made with corn, rice, potato, soybean, tapioca, arrowroot, carob, buckwheat, millet, amaranth and quinoa flour	Packaged rice mixes, cornbread, ready-to-eat cereals containing malt flavoring	Breads, buns, rolls, biscuits, muffins, crackers and cereals containing wheat, wheat germ, oats, barley, rye, bran, graham flour, malt; kasha; bulgur; Melba toast; matzo; bread crumbs; pastry; pizza dough; regular noodles, spaghetti, macaroni and other pasta; rusks; dumplings; zwieback; pretzels; prepared mixes for waffles and pancakes; bread stuffing or filling

## Fats and Oils

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Butter, margarine, vegetable oil, shortening, lard	Salad dressings, non-dairy creamers, mayonnaise	Gravy and cream sauces thickened with flour

## Fruits

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Plain, fresh, frozen, canned or dried fruit; all fruit juices	Pie fillings, thickened or prepared fruit, fruit fillings	None

## Vegetables

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
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Fresh, frozen or canned vegetables; white and sweet potatoes; yams	Vegetables with sauces, commercially prepared vegetables and salads, canned baked beans, pickles, marinated vegetables, commercially seasoned vegetables	Creamed or breaded vegetables; those prepared with wheat, rye, oats, barley or gluten stabilizers
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## Snacks and Desserts

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Brown and white sugar, rennet, fruit whips, gelatin, jelly, jam, honey, molasses, pure cocoa, fruit ice, carob	Custards, puddings, ice cream, ices, sherbet, pie fillings, candies, chocolate, chewing gum, cocoa, potato chips, popcorn	Cakes, cookies, doughnuts, pastries, dumplings, ice cream cones, pies, prepared cake and cookie mixes, pretzels, bread pudding

## Beverages

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Tea, carbonated beverages (except root beer), fruit juices, mineral and carbonated waters, wines, instant or ground coffee	Cocoa mixes, root beer, chocolate drinks, nutritional supplements, beverage mixes	Postum™, Ovaltine™, malt-containing drinks, cocomalt, beer, ale

## Soups

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Those made with allowed ingredients	Commercially prepared soups, broths, soup mixes, boullion cubes	Soups thickened with wheat flour or gluten-containing grains; soup containing barley, pasta or noodles

## Thickening Agents

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Gelatin, arrowroot starch; corn flour germ or bran; potato flour; potato starch flour; rice bran and flour; rice polish; soy flour; tapioca, sago	Commercially prepared soups, broths, soup mixes, boullion cubes	Wheat starch; all flours containing wheat, oats, rye, malt, barley or graham flour; all-purpose flour; white flour; wheat flour; bran; cracker meal; durham flour; wheat germ

## Condiments

NO Gluten	MAY Contain Gluten	DOES Contain Gluten
Gluten-free soy sauce, distilled white vinegar, olives, pickles, relish, ketchup	Flavoring syrups (for pancakes or ice cream), mayonnaise, horseradish, salad dressings, tomato sauces, meat sauce, mustard, taco sauce, soy sauce, chip dips	

## Seasonings

**NO Gluten****MAY Contain Gluten****DOES Contain Gluten**

Salt, pepper, herbs, flavored extracts, food coloring, cloves, ginger, nutmeg, cinnamon, bicarbonate of soda, baking powder, cream of tartar, monosodium glutamate

Curry powder, seasoning mixes, meat extracts

Synthetic pepper, brewer's yeast (unless prepared with a sugar molasses base), yeast extract (contains barley)

**Prescription Products****NO Gluten****MAY Contain Gluten****DOES Contain Gluten**

All medicines – Check with pharmacist or pharmaceutical company.

**Sample Menu****Breakfast****Lunch****Dinner**

Cream of rice – 1/2 cup  
Skim milk – 1 cup  
Banana – 1 medium  
Orange juice – 1/2 cup  
Sugar – 1 tsp

Baked chicken – 3 oz  
Rice – 1/2 cup  
Green beans – 1/2 cup  
Apple juice – 1/2 cup  
Ice cream – 1/2  
\* Ice cream should be made without wheat stabilizers.

Sirloin steak – 3 oz  
Baked potato – 1 medium  
Peas – 1/2 cup  
Fruit gelatin – 1/2 cup  
Butter – 1 Tbsp  
Tea – 1 cup  
Sugar – 1 tsp

The above sample diet provides the following: *1748 calories; 77 gm protein; 225 gm carbohydrates; 62 gm fat; 1577 gm sodium; 2934 potassium*