

# Gluten-Free Diet

**Quadarius Whitson**  
Culinary Nutrition & Food  
Safety Program Associate  
- Family & Consumer  
Sciences

## Definition

Gluten is a general name for the proteins found in wheat (wheatberries, durum, emmer, semolina, spelt, farina, farro, graham, Kamut Khorasan wheat, and einkorn), rye, barley, and triticale (a cross between rye and wheat). A gluten-free diet is an eating plan that excludes all gluten from the diet.

## Purpose

A gluten-free diet is integral to managing the signs and symptoms of celiac disease and other medical conditions related to consuming gluten.

## Gluten-Associated Medical Conditions

- **Celiac disease** is a lifelong autoimmune disorder where gluten triggers the immune system, causing damage to the lining of the small intestine. Symptoms include bloating, nausea, vomiting, constipation, abdominal pain, and diarrhea. If not well-managed, this damage will inhibit the absorption of nutrients from food, causing anemia, bone disease, growth faltering, and other conditions caused by the malabsorption of nutrients. Currently, following a gluten-free diet is the only way to treat celiac disease.



- Non-celiac gluten sensitivity, also known as gluten intolerance, causes similar signs and symptoms associated with celiac disease but does not cause damage to the tissue of the small intestines. Research suggests that the immune system does play a role, but the underlying mechanisms still need to be fully understood.
- **Gluten ataxia** is a rare autoimmune disease that causes the body's immune system to attack the nervous system as a reaction to gluten consumption. This attack damages the brain, particularly the cerebellum, causing problems with muscle coordination and voluntary muscle movements.
- **Wheat allergy** results in an immune system mistaking wheat as a disease-causing agent, such as a virus or

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bacteria, prompting an immune response. Symptoms include hives, rash, nausea, stomach cramps, and diarrhea. Severe wheat allergies may cause a life-threatening condition called anaphylaxis.

## Diet Details

Following a gluten-free diet requires being mindful of the selection of food, its ingredients, and its nutritional content. A wide variety of cost-effective and nutritious foods are naturally gluten-free, such as fruit, vegetables, beans, seeds, legumes, nuts (in their natural/unprocessed form), eggs, lean meats such as fish and poultry, and most dairy products.

Grains, starches, and flours **allowed** in a gluten-free diet:

- Amaranth
- Arrowroot
- Buckwheat
- Corn — cornmeal, grits, and polenta labeled gluten-free
- Flax
- Gluten-free flours — rice, soy, corn, potato and bean flour
- Hominy (corn)
- Millet
- Quinoa
- Rice, including wild rice
- Sorghum
- Soy

- Tapioca (cassava root)
- Teff

Grains, Starches, and flours **not allowed** in a gluten-free diet:

- Wheat
- Barley
- Rye
- Triticale — a cross between wheat and rye
- Enriched flour (flour with added vitamins and minerals)
- Farina (milled wheat usually used in hot cereal)
- Graham flour (a coarse whole-wheat flour)
- Self-rising flour (also called phosphate flour)
- Semolina (milled wheat used in pasta and couscous)

Use with **caution** in a gluten-free diet:

- Oats

Oats are naturally gluten-free but depending on the facility, they may encounter wheat, barley, or rye during processing and production. People with celiac disease or other forms of gluten sensitivity should only buy oats and oat products labeled “gluten-free.” This shows that the product they are buying has been processed in a facility with no contact with any wheat, barley, or rye. It is interesting to note that some people with celiac disease may not be able to tolerate gluten-free labeled oats. This is likely due to an intolerance of a protein called avenin in oats or high levels of soluble fiber. If these people eat oats, it can cause gas and bloating depending on the amount they consume.

## Gluten-Free Food Labels

When buying processed foods, it's important to read labels to check for the presence of gluten. According to U.S. Food and Drug Administration (FDA) regulations, any food containing wheat, rye, barley, triticale, or ingredients derived from these grains must list the grain's name in the ingredient list.



Foods labeled according to FDA regulations must contain less than 20 parts per million of gluten. These labels may apply to:

- Naturally gluten-free foods
- Prepared foods without any gluten-containing ingredients
- Foods produced without cross contact with gluten-containing ingredients
- Foods made with gluten-containing ingredients that have been processed to remove gluten

Alcoholic beverages made from naturally gluten-free ingredients, like grapes or juniper berries, can be labeled gluten-free. However, if an alcoholic beverage is produced from gluten-containing grains (such as wheat, barley, rye, or hybrid grains like triticale) it may include a label saying it was “processed,” “treated,” or “crafted” to remove gluten. In that case, the beverage cannot be labeled as gluten-free.

Grains like wheat, barley, and rye are standard ingredients in many products. In addition, wheat or wheat gluten is usually added as a binding or thickening agent, flavoring, or coloring.

Watch out for the following foods unless they are labeled gluten-free, or the label states the food is made with corn, rice, soy, or other gluten-free grain:

- Beer, ale, porter, stout (usually contains barley)

- Breads
- Bulgur wheat
- Cakes and pies
- Candies
- Cereals
- Communion wafers
- Cookies and crackers
- Croutons
- Boxed mashed potatoes
- Gravies
- Imitation meat or seafood
- Malt, malt flavoring and other malt products (barley)
- Matzo
- Pastas
- Hot dogs and processed lunch meats
- Salad dressings
- Sauces, including soy sauce (wheat)
- Seasoned rice mixes
- Seasoned snack foods, such as potato and tortilla chips
- Self-basting poultry
- Soups, bouillon, or soup mixes
- Vegetables in sauce



## Outlook

Following a gluten-free diet is a lifelong need for individuals with celiac disease and other gluten-related medical conditions. The foods excluded from a gluten-free diet, such as whole-grain bread, are important sources of essential vitamins and minerals like iron, calcium, fiber, thiamin, riboflavin, niacin, and folate. So, those following a gluten-free diet must include other foods rich in these nutrients in their diet like dark green leafy vegetables and citrus fruits.

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