

Gluten Information

What is Gluten?

Gluten is a composite of the proteins *gliadin* and *glutenin*. These exist, conjoined with starch, in the endosperms of some grass-related grains, notably wheat, rye, and barley. Gliadin and glutenin comprise about 80% of the protein contained in wheat seed. Being insoluble in water, they can be purified by washing away the associated starch.

Worldwide, gluten is an important source of nutritional protein, both in foods prepared directly from foods containing it, and as an additive to foods otherwise low in protein. The glutenin in wheat flour gives kneaded dough its elasticity, allowing leavening and contributing chewiness to baked products like bagels.

What is Celiac disease?

Celiac disease is a condition that is the result of an inappropriate immune system response to gluten. The manifestations of celiac disease range from no symptoms to malabsorption of nutrients with involvement of multiple organ systems. The only effective treatment is a lifelong gluten-free diet.

What is a Wheat Allergy?

Wheat allergy occurs when there is an allergic reaction to gluten (the protein found in wheat, rye, barley and oats). Gluten proteins are extremely resistant to intestinal digestion, despite grinding, cooking, processing and digestion. Gluten causes damage to the intestinal lining by eroding the villi and microvilli essential for digestion and absorption processes. This damage then increases the likelihood of partially digested gluten proteins passing into the bloodstream. Certain proteins cause our immune systems to react. Undigested partial proteins found in gluten cereals have morphine-like properties once they enter the bloodstream, suggesting an origin for the phrase 'comfort foods' and its addictive nature. Once an immune response has been initiated, inflammatory reactions can cause a whole host of wheat allergy symptoms. A gluten/wheat allergy may not always be a severe frequent reaction but can result in many digestive symptoms – flatulence, bloating, constipation, diarrhea, pain etc. – and may aggravate a host of other symptoms:

tiredness	skin rashes	cramps	acne and boils
sweating	headaches	migraines	psoriasis
arthritis	eczema	anxiety	depression

Wheat is more likely to cause an allergic reaction than any other grain. Modern wheat has been developed to contain higher gluten levels for the manufacture of bread and other products, and our digestive systems were not designed to cope with the indigestible proteins. Some people with a wheat allergy find they can tolerate oats, however it is important to note that oats are often processed and stored alongside other grains.

What is a Gluten-Free diet?

A **gluten-free diet** is recommended amongst other things in the treatment of celiac disease and wheat allergy. It is a diet completely free of ingredients derived from gluten-containing cereals: wheat (including Kamut and spelt), barley, rye, oats and triticale, as well as the use of gluten as a food additive in the form of a flavoring, stabilizing or thickening agent. Although most patients can tolerate oat products, there is a controversy about including them in a gluten-free diet: some medical practitioners say they may be permitted, but the Celiac Society advises against them.

Several grains and starch sources are considered acceptable for a gluten-free diet. The most frequently used are maize (corn), potatoes, rice, and tapioca (derived from cassava). Other grains and starch sources generally considered suitable for gluten-free diets include amaranth, arrowroot, millet, montina, lupine, quinoa, sorghum (jowar), sweet potato, taro, teff, and yam. Various types of bean, soybean, and nut flours are sometimes used in gluten-free products to add protein and dietary fiber. In spite of its name, buckwheat is not related to wheat; pure buckwheat is considered acceptable for a gluten-free diet, although many commercial buckwheat products are actually mixtures of wheat and buckwheat flours, and thus not acceptable. Gram flour, derived from chickpeas, is also gluten-free.

Gluten is also used in foods in some unexpected ways, for example as a stabilizing agent or thickener in products like ice cream and ketchup.

People wishing to follow a completely gluten free diet must also take into consideration the ingredients of any over-the-counter or prescription medications and vitamins. Also, cosmetics such as lipstick, lip balms, and lip gloss may contain gluten and need to be investigated before use.