



# Wheat Allergy, Celiac Disease and Non-Celiac Gluten Sensitivity: What's the Difference?

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## EXTENSION

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### Grains

Grains, especially whole grains, provide many nutrients that are vital for health. However, some people cannot eat certain grains for health reasons. Wheat allergy, celiac disease and non-celiac gluten sensitivity are three conditions that affect the type of grains a person can eat.

### Wheat Allergy

With a wheat allergy, the immune system makes antibodies to one of the proteins in wheat. The antibodies cause the wheat allergy symptoms. Wheat allergy symptoms vary from person to person. Symptoms can range from mild to life-threatening. Symptoms may include:

- stuffy or runny nose
- sneezing
- nausea
- cramps
- vomiting
- diarrhea
- itching
- hives
- rashes
- asthma
- trouble breathing or swallowing
- chest pain
- drop in blood pressure

About 3% of children have a wheat allergy. Most children outgrow their wheat allergy as they get older. Only about 1% of adults have a wheat allergy.

People who have a wheat allergy must avoid wheat in the diet. Some people with a wheat allergy also may have problems with other grains. Work with your doctor to find out what grains you can safely eat.

If you must avoid wheat, be sure to check food ingredient labels carefully. Terms that indicate the presence of wheat include:

- atta
- bread
- bran
- bread crumbs
- bulgar
- cereal extract
- club wheat
- couscous
- cracker meal

- crackers
- durum
- einkorn
- emmer
- farina
- flour:
  - all-purpose, both bleached and unbleached
  - bread
  - cake
  - durum
  - enriched
  - graham
  - high-gluten
  - high protein
  - pastry
  - self-rising
  - stone-ground
  - whole wheat and white whole wheat
- fu
- gluten
- hydrolyzed wheat protein
- kamut®/khorasan wheat
- macaroni
- matzo
- pasta
- seitan
- semolina
- spelt
- sprouted wheat
- triticale
- wheatgrass
- whole wheat berries

Some foods that may be made with wheat include:

- baked goods
- granola
- hydrolyzed vegetable protein
- malt
- oats
- soy sauce
- starch (gelatinized, modified, food starch)
- surimi
- vegetable gum

Non-food items like beauty products and Play-Doh also may contain wheat. Avoid cross-contact with wheat in the kitchen via counter-tops, cooking utensils and toasters.

## Celiac Disease

Celiac disease is a genetic autoimmune disease. About 1% of the population has celiac disease. People with celiac disease have an abnormal immune reaction to gluten. Gluten is a protein found in wheat, rye and barley. When people with celiac disease eat gluten, their immune system attacks and damages the small intestine.

Celiac disease affects people differently. Common symptoms are:

- cramps
- bloating
- diarrhea
- constipation
- nausea
- vomiting

Other symptoms can include:

- fatigue
- bone and joint pain
- depression
- irritability
- headaches

With time, celiac disease can lead to other health problems if not treated like:

- extreme weight loss
- malnutrition
- bone loss
- anemia

A doctor can run tests to see if a person has celiac disease. People should not stop eating gluten before being tested because it can change the results.

There is no cure for celiac disease. The only treatment is to remove gluten from the diet. Once gluten is removed, the intestines will start to heal. People who have celiac disease must follow a gluten-free diet for life to stay healthy.

There is a difference between avoiding only wheat and avoiding gluten. Avoiding gluten means in addition to cutting out wheat, you also have to cut out foods that contain barley and rye.

Some medicines, supplements and beauty products may contain gluten. Food labels do not always list gluten as an ingredient. Instead, they will often list some form of wheat. Also, check for rye and barley. Malt and malt flavor are made from barley, so look for these are terms.

Pure oats do not contain gluten. But oats can be contaminated with wheat, barley and rye during processing. To avoid this risk, certified gluten-free oats are available.

At present, one in five Americans (20%) buy gluten-free foods. This is far more people than need to for health reasons. But it has increased the number of gluten-free foods in stores.

## Non-Celiac Gluten Sensitivity

Non-celiac gluten sensitivity is a non-specific immune response. About 5% of the population has non-celiac gluten sensitivity.

We are still learning about non-celiac gluten sensitivity. It is unclear whether gluten or other compounds in wheat cause

the problem. In fact, a new term, “non-celiac wheat sensitivity,” is often used to describe this condition.

People who have non-celiac gluten sensitivity have symptoms somewhat similar to celiac disease, which improve when gluten is removed from the diet. However, they do not test positive for celiac disease or wheat allergy. Until lately, it was thought people with non-celiac gluten sensitivity did not have damage to the intestine. But new findings have shown damage may occur, although it is not as noticeable as in celiac disease.

At present, a gluten-free diet is the main treatment for non-celiac gluten sensitivity. However, unlike celiac disease, new findings suggest people with non-celiac gluten sensitivity may not have to follow a gluten-free diet for life.

## Summary

Unless you have a wheat allergy, celiac disease or non-celiac gluten sensitivity, there is no reason to avoid wheat or gluten. Many gluten-free foods cost more and have more fat and sugar than similar foods with gluten. Talk to a doctor if you are unsure if you have a problem with wheat or gluten before changing your diet.

## References

- American Academy of Allergy Asthma & Immunology. (2020). Celiac disease, non-celiac gluten sensitivity, and food allergy: how are they different. <https://www.aaaai.org/conditions-and-treatments/library/allergy-library/celiac-disease>
- American College of Allergy, Asthma and Immunology. (2014). Wheat allergy <https://acaai.org/allergies/types/food-allergies/types-food-allergy/wheat-gluten-allergy>
- American College of Allergy, Asthma and Immunology. (2014). Wheat allergy or celiac disease? <https://acaai.org/resources/connect/ask-allergist/wheat-allergy-or-celiac-disease>
- Brown, M.D., Brummit, P. & Miracle, S. (Eds.) (2017). Oklahoma Nutrition Manual (14th ed.). *Oklahoma Academy of Nutrition and Dietetics*.
- Celiac Disease Foundation. (2020). Non-celiac gluten/wheat sensitivity. <https://celiac.org/about-celiac-disease/related-conditions/non-celiac-wheat-gluten-sensitivity/>
- Celiac Disease Foundation. (2020). What is celiac disease? <https://celiac.org/about-celiac-disease/what-is-celiac-disease/>
- Cianferoni, A. (2016). Wheat allergy: Diagnosis and management. *Journal of Asthma and Allergy*, 9, 13-25.
- Lebwohl, B., Ludvigsson, J.F. & Green, P.H.R. (2015). Celiac disease and non-celiac gluten sensitivity. *British Medical Journal*, 351.
- Leonard, M.M., Sapone, A., Catassi, C., & Fasano, A. (2017). Celiac Disease and nonceliac gluten sensitivity: A review. *Journal of the American Medical Association*, 318(7), 657-656.
- Marchioni-Beery, R.M. & Birk, J.W. (2015). Wheat-related disorders reviewed: Making a grain of sense. *Expert Review of Gastroenterology & Hepatology*, 9(6), 851-864.
- Pinto-Sanchez, M.I. & Verdu, E.F. (2018). Non-celiac gluten or wheat sensitivity: It's complicated. *Neurogastroenterology & Motility*, 30(e)13392. <https://pubmed.ncbi.nlm.nih.gov/30854780/>
- Riffkin, R. (2015, July 23). One in five Americans include gluten-free foods in diet. Gallup News. <https://news.gallup.com/poll/184307/one-five-americans-include-gluten-free-foods-diet.aspx>
- Roszowska, A., Pawlicka, M., Mroczek, A., Balabuszek, K., & Nieradko-Iwanicka, B. (2019). Non-Celiac Gluten Sensitivity: A Review. *Medicina*, 55(6), 222. <https://pubmed.ncbi.nlm.nih.gov/31142014/>
- Skodje, G.I., Sarna, V.K., Minelle, I.H., Rolfsen, K.L., Muir, J.G., Gibson, P.R., Veierod, M.B., Henriksen, C., & Lundin, K.E.A. (2018). Fructan, rather than gluten, induces symptoms in patients with self-reported non-celiac gluten sensitivity. *Gastroenterology*, 154(3), 529-539.e2.

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