

WHEAT AND GLUTEN

When wheat does not agree with you, the answer is not always as simple as “gluten.”

START HERE: Gluten is a protein — but wheat is a whole package.

A reaction after bread, pasta or another wheat food tells us that something in that food may be a problem. It does not automatically tell us which component is responsible.

WHAT EXACTLY IS GLUTEN?

Gluten is a family of storage proteins found in wheat, barley and rye. In wheat, the two major protein groups are gliadins and glutenins. When flour is mixed with water, these proteins form the stretchy network that gives dough its chew and helps bread hold its shape.

Gluten is rich in amino acids called proline and glutamine. Our normal digestive enzymes can break gluten down, but they may leave behind some relatively large protein fragments called peptides. For most people those fragments are not a problem. In celiac disease, certain gluten peptides trigger an abnormal immune response.

WHY CAN “GLUTEN-FREE” HELP EVEN IF GLUTEN ISN’T THE ONLY ISSUE?

Removing gluten usually means removing a lot of wheat at the same time. That also lowers exposure to other wheat components, especially fructans, so feeling better on a gluten-free diet does not, by itself, prove that gluten was the specific trigger.

WHEAT IS A PACKAGE

GLUTEN

Protein. The key trigger in celiac disease and one possible trigger in non-celiac sensitivity.

FRUCTANS

Fermentable carbohydrates in wheat and many other foods. They can cause gas, bloating, pain and bowel changes in people who are sensitive to FODMAPs.

ATIs

Amylase-trypsin inhibitors: small wheat proteins that help protect the plant. They can activate innate immune pathways in laboratory research; their exact role in human wheat sensitivity is still being worked out.

“WHEAT BOTHERS ME” CAN MEAN DIFFERENT THINGS

1. Celiac disease: an autoimmune disease.

“Autoimmune” means the immune system mistakenly attacks the body’s own tissue. Gluten exposure can injure the lining of the small intestine. This is the condition where strict lifelong gluten avoidance is medically necessary.

2. Wheat allergy: an allergic reaction to wheat proteins, usually involving IgE antibodies. Symptoms may occur quickly and can include hives, swelling, wheezing, vomiting or, rarely, anaphylaxis. This is different from celiac disease.

3. Non-celiac wheat/gluten sensitivity: symptoms occur after eating wheat or gluten, but celiac disease and wheat allergy are not present. Gluten may be the trigger for some people; fructans or other wheat components may be responsible for others. May also be associated with the gut microbiome and/or “leaky gut”.

4. IBS/FODMAP sensitivity: some people who believe they react to gluten are actually sensitive to fructans, which is a type of FODMAP carbohydrate in wheat. FODMAPs pull water into the intestine and are rapidly fermented by gut bacteria, which can create gas, stretching and pain in a sensitive gut.

SYMPTOMS CAN GO BEYOND THE GUT

Depending on the condition, wheat-related symptoms may include bloating, abdominal pain, diarrhea, constipation, nausea or reflux-like symptoms. Some people with non-celiac wheat/gluten sensitivity also report fatigue, headache, “brain fog,” joint or muscle discomfort and other symptoms.

IMPORTANT BEFORE GOING GLUTEN-FREE

If celiac disease is a possibility, testing is most accurate while gluten is still being eaten. Starting a gluten-free diet first can lower celiac antibodies and allow the intestine to begin healing, which can make later testing harder to interpret.

Educational information only; not a substitute for individualized medical care.

Sources available upon request.



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FIGURING OUT WHY

Then it makes sense to ask “What am I actually reacting to?”

FRUCTANS: A COMMON GLUTEN LOOK-ALIKE

Fructans are short chains of fructose molecules found in wheat and many other foods. Humans do not have the enzyme needed to fully split them apart in the small intestine, so they continue to the colon, where gut microbes ferment them.

Fermentation is normal, but fructans can also pull water into the intestine. In a person with IBS or a sensitive gut, extra water plus rapid gas production can create bloating, pressure, pain and altered bowel movements. This is a fermentation and stretching problem — different from the autoimmune intestinal injury of celiac disease.

WHY SOURDOUGH MAY FEEL DIFFERENT

With traditional long fermentation, yeast and bacteria have more time to use some of the fructans in dough. That can lower the FODMAP load and may help explain why some people with IBS or wheat sensitivity tolerate a traditionally fermented bread better.

BUT:

Regular wheat sourdough still contains gluten. It is not safe for someone with celiac disease unless it is made from gluten-free ingredients and meets gluten-free standards.

ANCIENT & SPROUTED WHEAT ARE STILL WHEAT

Spelt, einkorn, emmer/farro and khorasan (Kamut®) are older forms of wheat. Their protein and carbohydrate profiles differ from modern bread wheat, but they still contain gluten and are not safe for celiac disease. Sprouting changes a grain too: as the seed germinates, its own enzymes begin breaking down some stored starches and proteins. That may change texture, nutrient availability and digestibility, but it does not remove gluten. Sprouted breads made with wheat, barley or rye are still gluten-containing foods.

WHAT CAN BETTER TOLERANCE TELL US?

If someone without celiac disease tolerates sourdough, an ancient wheat or sprouted bread better, that is a useful clue. Fermentation, fructans, grain variety, protein breakdown, portion size or other processing differences may be involved. It does not automatically prove that gluten itself was the problem.

THE TAKEAWAY

“Wheat sensitivity” is not one diagnosis. The better we identify the mechanism, the more precise — and often less restrictive — the nutrition plan can be.

SORTING IT OUT

1. Rule out celiac disease first. If celiac is possible, do the blood work before removing gluten. In adults, a small-intestinal biopsy is often used to confirm the diagnosis.

2. Consider allergy when the pattern is allergic. Rapid hives, swelling, wheezing or throat symptoms deserve evaluation for wheat allergy rather than being labeled “gluten sensitivity.”

3. If celiac and allergy are excluded, use a structured trial. Planned elimination followed by re-introduction can help sort out wheat, gluten, fructans, dose or fermentation without removing foods indefinitely.

4. Look at the whole digestive picture. IBS, constipation, gut motility, microbiome, lactose intolerance, SIBO and other GI conditions can change food tolerance. The same symptom can have more than one cause.

FOUR COMMON MYTHS

Gluten-free means healthier. Not necessarily. Many packaged GF foods are still highly refined, and many add more sugar.

If I feel better gluten-free, gluten must be the cause. Maybe. But wheat removal also removes fructans and other components.

Sourdough is safe for celiac disease. No. Wheat sourdough still contains gluten.

A digestive enzyme makes gluten safe. No. Enzymes do not prevent the autoimmune reaction or intestinal injury of celiac disease. But enzymes may make gluten easier to digest.

WHAT ABOUT GMO WHEAT & GLYPHOSATE?

These are separate questions. Commercial wheat grown in the US is not genetically engineered (GMO). Modern wheat has changed through selective breeding, by choosing and crossing plants for desired traits over generations, but that is different from genetic engineering. Glyphosate is an herbicide. Some products are labeled for use on mature wheat before harvest to control weeds. Human research has not established glyphosate as a cause of celiac disease or non-celiac wheat sensitivity, although possible microbiome effects continue to be studied.

“I TOLERATE ORGANIC OR EUROPEAN BREAD BETTER.”

Useful information. But not proof of why. Wheat variety, milling, fermentation, fructans, additives, serving size and farming practices all differ. Organic may reduce some synthetic chemical exposures.

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