

What's Up With Wheat

Some claim it's the staff of life. Others say we should avoid it. Take a closer look at this ubiquitous and controversial grain.

BY JILL METZLER PATTON

Public-health messages often tout whole wheat as an important source of vital nutrients. Yet, in many health circles, wheat is eyed with suspicion as increasing numbers of people report digestive problems, headaches, joint pain, skin irritation, sapped energy, and mood disruptions when they eat it. In addition, some integrative-health experts have raised concerns about wheat's suspected role in certain chronic diseases.

The grain has long been a cornerstone of the human diet, but the wheat we eat today is not the same wheat our grandparents enjoyed. The way it is produced, processed, and consumed has changed significantly in the past 50 years, which goes a long way in explaining the controversies surrounding it.

Modern wheat varieties are bred for increased production, pest resistance, and improved baking qualities. They also often produce higher levels of the protein gluten and other compounds that can be problematic for some.

The wheat-based foods we eat are different as well, usually made from ungerminated grains, which contain more reactive compounds than traditionally prepared sprouted wheat. And fast-acting yeast is commonly used for fermentation, which delivers fewer and less-diverse bacteria than old-school sourdough methods. It's also less effective at degrading wheat's reactive components.

At the same time, wheat consumption has risen significantly, thanks in part to the rapid expansion of the fast-food and packaged-food industries. Consumption dipped slightly in the most recent decade, largely due to a rise in gluten-free diets; still, the average American today consumes 134 pounds of wheat flour annually.

We spoke with health experts and researchers about some of the problems associated with wheat. While they acknowledge there is still much to learn about the grain's properties — including the mechanisms that cause health

problems in some people — many expressed concern with the quality and quantity of the wheat we consume.

“Adverse food reactivity is a consideration in every patient I see,” explains Minneapolis-based functional-medicine specialist Gregory Plotnikoff, MD, whose patients have often struggled with unresolved health problems before seeking him out. “And on top of the adverse-food-reactivity list is wheat.”

Protein of Interest: Gluten

The rise in wheat consumption coincides with an increased prevalence of celiac disease, a condition in which the protein gluten (found in wheat, barley, and rye) triggers an autoimmune response that attacks the small intestine in some genetically susceptible individuals.

The way wheat is produced, processed, and consumed has **changed significantly in the past 50 years.**

Celiac affects 1 percent of Americans, a number that is expected to grow with increased awareness and better testing methods.

Some people have a wheat allergy, which generates an antibody to proteins (including gluten) in the grain. Up to 1 percent of children in the United States are allergic to wheat (though they often outgrow it), while just 0.4 percent of adults are.

Harder to pin down is the apparent rise in nonceliac gluten sensitivity (NCGS), a condition characterized by digestive and nondigestive symptoms that improve when gluten-containing foods are removed from the diet.

Researchers estimate that 6 to 8 percent of Americans have NCGS, but it's difficult to diagnose. There are no established biomarkers, and symptoms can mimic other conditions,

It Might Not Be Gluten

If you experience digestive and nondigestive symptoms after eating pasta and bread, you may assume it's due to gluten and opt to go gluten-free. This is a growing trend. Yet, double-blind, placebo-controlled studies show that only 38 percent of patients with nonceliac gluten sensitivity are actually reacting to gluten.

This doesn't mean that wheat isn't behind your symptoms: You could be reacting to other compounds in the grain, or to byproducts of modern wheat cultivation and processing. Some experts now prefer the term "nonceliac wheat sensitivity."

6%–8%

Estimated percentage of Americans with nonceliac gluten sensitivity

3.1 million

Number of Americans following a gluten-free diet – about 10 percent of the population

\$7.6 billion

Amount Americans are projected to spend annually on gluten-free foods by 2020

Sources: Alessio Fasano, MD, IFM Conference, 2018; www.statista.com; *Clinical Gastroenterology and Hepatology*

including irritable bowel syndrome and fructose malabsorption. Further, people often self-diagnose and adopt gluten-free diets on their own without screening for other potential causes of their symptoms.

Opinions differ on exactly how gluten may trigger NCGS symptoms, though many experts point to its role in creating gut permeability — the opening of microscopic spaces in the thin layer of cells lining the intestinal wall.

Humans cannot completely digest gluten, explains pioneering celiac-disease researcher Alessio Fasano, MD, the W. Allan Walker Chair in Pediatric Gastroenterology and Nutrition at Massachusetts General Hospital. Specifically, we can't digest a smaller protein within gluten called gliadin, whose presence spurs the release of zonulin, a molecule that regulates gut permeability.

Excessive intestinal permeability — known as leaky gut — can allow bacteria, toxins, and undigested food to enter directly into the bloodstream and cause bodywide inflammation. This can, in turn, be a precursor to autoimmune conditions and manifest in symptoms of conditions such as eczema and neurological issues.

Gluten's role in triggering gut permeability has caused some experts to view it as an inherently dangerous substance.

"Anything that increases intestinal permeability increases the risk of celiac disease and other autoimmune conditions in individuals who are genetically predisposed," says Florida-based neurologist David Perlmutter, MD, author of *Grain Brain*. He further argues that gluten's ability to disrupt the gut lining is reason enough for everyone to avoid it. "Gluten-containing foods exacerbate problems with gut health and the inflammation that ensues from it."

Other experts disagree that everyone should avoid gluten, including some celiac-disease researchers who argue that their findings have been misinterpreted and overstated.

"Some information has been taken out of context," Fasano says. With regard to gluten's role in intestinal permeability, for instance, he explains: "This happens to everybody — though for the vast majority of people, this increased permeability is temporary. It's switched on and off, and therefore does not have any long-term consequences and doesn't



Wheat by the Numbers

134

Pounds of wheat flour Americans consume annually, on average

Wheat is ubiquitous in the U.S. diet, but we may be getting more (and in some ways, less) from our wheat than we bargain for. Growers use up to 96 different pesticide active ingredients on wheat crops. Processed-wheat products rely heavily on additives. And most wheat-based foods are made from refined white flour, which has been stripped of its bran and germ.

33%

Percentage of wheat acres sprayed with glyphosate in 2016

29%

Percentage of supermarket foods – including soups, ice creams, marinades, vinegars, and dressings – that use wheat compounds, including gluten, as thickeners

Sources: www.statista.com; National Wheat Foundation; *Comprehensive Reviews in Food Science and Food Safety*

sensitivity, some experts now prefer the term “nonceliac *wheat* sensitivity.” This reflects not only the potentially troublesome proteins and carbohydrates but also other properties in the grain that may be making people ill.

The Processing Problem

Like the wheat itself, today’s wheat-based foods differ from those of the past. Additives in these products are common. For example, bread manufacturers will add *extra* gluten — known as vital wheat gluten — to improve texture. (This is made by extracting gluten from wheat, leaving behind just the starch.)

“If you buy cheap white bread, it’s probably made with cheap flour that doesn’t have a lot of gluten in it, but it has this added vital wheat gluten,” explains Green.

Numerous commercial food products also contain an added enzyme called microbial transglutaminase, which facilitates certain chemical reactions in bakery goods, dairy products, and processed meats. It activates gluten and causes an immune response in celiac patients, says Green. “This could be responsible for the increase in celiac disease, and it could be responsible for people becoming sensitive to gluten.”

Finally, today’s breads, cereals, pastas, crackers, pastries, and desserts are often created from wheat stripped of its bran and germ and ground into white flour, a refinement process that all but eliminates wheat’s important nutrients, including dietary fiber. Some nutrients are added to “enriched” flour, but most flours are shadows of their former nutritional selves.

Worse, they can trigger erratic spikes in blood glucose and insulin, which bring other health problems. “The refined stuff is the worst,” says Paul Kriegler, RD, a nutrition program manager for Life Time in Chanhassen, Minn. “It’s basically like eating table sugar.”

Overloaded Systems

On top of all these concerns, countless environmental and lifestyle factors can disrupt the integrity and microbial balance of the gut, which houses 70 percent of the immune system — making us more vulnerable to the potential problems associated with wheat.

“Our immune systems are challenged by 21st-century living,” says Liz Lipski, PhD, CCN, CHN, professor and director of academic development for the nutrition programs at Maryland University of Integrative Health and author of *Digestive Wellness*. A lifetime of exposure to medications, processed foods, tobacco smoke, alcohol, pol-

lutants, chemicals in personal-care products, and even stress can set us up for a host of symptoms and diseases, she explains.

For people with compromised gut health, whether or not they have an official wheat-related diagnosis, “wheat is just one more assault,” Lipski says.

Have Your Wheat and Eat It, Too?

Clearly, people with celiac disease and wheat allergies must avoid all wheat products. But can the rest of us — even those of us with apparent sensitivities — ever enjoy wheat again?

For some, respite may be found in foods made from organic heritage grains, which are varieties developed prior to the 1950s. The data is limited, but it suggests that some heritage varieties, including einkorn, emmer, and Khorasan (marketed as Kamut), may have lower levels of reactive proteins and fructans compared with most modern wheat. Some people with wheat sensitivities find they have fewer problems with heritage wheats. At this point, however, no wheat species or varieties have been proven safe for people with celiac or wheat allergies.

Lipski and other experts recommend fermenting flour (from organic heritage grains, if possible) to further reduce the challenges associated with digesting wheat. “When you make sourdough, you’re picking up the microbes that are in your own kitchen, and you are harmonizing yourself with your own environment,” she explains.

Even for those of us who don’t notice any problems after eating breads and pastas, moderation is wise, says Kriegler — and we should all be cautious about processed foods.

“I teach my clients to reverse-engineer what they should be eating in a day, and then see where wheat fits in,” he says. “If you’re getting plenty of produce, healthy proteins, and fats, your appetite’s going to be stable. Do you still want bread? Sure, you can eat it, but it becomes more of a condiment than a main dish.” 🍞

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