



**GLUTEN
INTOLERANCE
GROUP**
of East Central Wisconsin

THE TALE OF TWO NIGHTCLUBS

Understanding Celiac Disease Through
Motorcycles and Night Clubs
By Alan Klapperich

Gluten Basics

What is gluten? Gluten is the generic term for the proteins found in grains. The proteins found in wheat, barley, rye and commercial oats (think Quaker Oats) are not acceptable for those who are gluten-free. Certified GF oats are acceptable for some.

Where is gluten found?

Just about everywhere! Bread, pizza, cake, cookies, crackers, pasta, cereal, soups, sauces, beer - just to name a few foods. Many processed foods contain gluten in some form or another. It's very prevalent in the Standard American Diet.

What does gluten do?

Gluten provides the structure, the framework - it holds everything together. It gives that chewy texture that is desirable in many foods like bread & pizzas. It also makes a lot of people sick.

Several years ago, I encountered a recently-diagnosed guy who was having a rough time. His friends would hassle him about his diet, and he was struggling to explain celiac disease to them. As I got to know him, he revealed he rode motorcycles and hung with his buddies in bars. Back then, I came up with this basic analogy to help them understand. I decided to beef it up a bit. While I geared it toward his interests, I think it's generic enough to be understood by everyone.

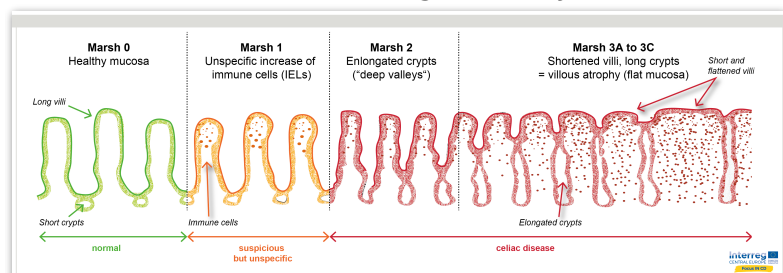
Indeed, getting family and friends to understand this condition can be trying at times. It doesn't make sense how we can eat something all of our life - then BANG - we can't. Nor do they comprehend how diligent we must be in our diet or the seriousness of gluten infractions. It's our responsibility to educate them the best we can or as much as they will allow us. Be aware; they may not want to hear any of it.

What is Celiac disease?

The Gluten Intolerance Group defines it this way:

"Celiac disease is a chronic, autoimmune disease which is the result of an immune system response to the ingestion of gluten (a protein found in wheat, rye, and barley) in susceptible individuals. This response to gluten damages the small intestine, leading to malabsorption of nutrients and related health issues."

Classification of Intestinal Damage Caused by Celiac Disease



How Much?

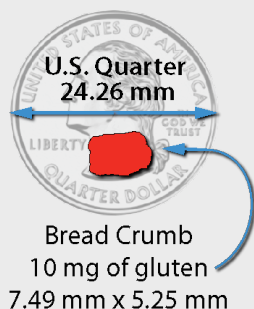
How much arsenic would you like in your food?

Not only must the food be gluten-free, but it also must not come in contact with any gluten.

The concept of "a crumb will hurt you" is hard for people to understand because it involves minuscule amounts.

How small? A [multicenter, double-blind, placebo-controlled, randomized study](#) has shown that up to **10 milligrams of gluten per day to be a safe amount. Yes, per DAY.** (10mg = [1/8th of a teaspoon of flour.](#))

10 mg of gluten



What does 10mg of gluten look like?

<http://bit.ly/GFWD-10MG>

Tricia Thompson, MS, RD of Gluten-Free Watchdog answers this question.

She breaks it all down for us starting with a one ounce (3,515 mg) slice of gluten bread.

Special thanks to Tricia for allowing me to use her pictures to draw this diagram to show the relative size.

BUT - For many, even 10 mg is too much.

Who can get celiac disease?

"Genetics loads the gun - the environment pulls the trigger."

- Dr. Judith Stern Professor of Nutrition and Internal Medicine University of California at Davis.

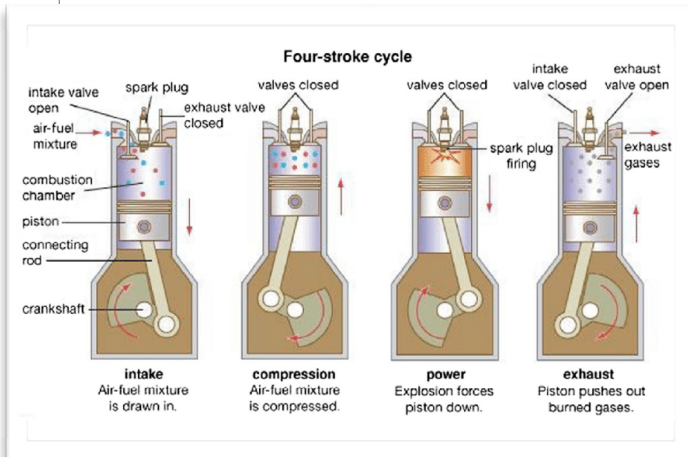
Science knows that about one-third of the world's population has the potential of triggering this autoimmune disease due to their genetic makeup. However, only about 1% are "lucky" enough to have the condition activated. Since this condition is hereditary [you got it from one or both of your parents], family members carry a higher risk factor than the average population. If you have a diagnosis, your mom, dad, and siblings need to be screened because they have a 1 in 10 risk of developing it. They may have it, but may not know it, or maybe they deny it. It's estimated that over 80% of celiacs remain undiagnosed. Without the celiac genes, celiac disease is very unlikely. Non-Celiac Gluten/Wheat Sensitivity, on the other hand, is another topic.



How do I get celiac disease?

Often we experience an event that is a suspected trigger like surgery, an infection, illness, pregnancy, or possibly extreme stress. Experts don't completely understand the exact reason a person loses their life-long ability to tolerate gluten, but they're working on it. They know that genetics and environment are necessary, but not sufficient to determine if someone will get celiac disease. Three other elements are vital in this equation: a gut that leaks - allowing the gluten to interact with our immune system; an overly-belligerent immune system; and an altered microbial ecosystem in our gut that is known as our microbiome. Of course, one must be consuming gluten in the first place. In today's society, that's almost a given.

At an elementary level, our body is similar to a combustible engine. An engine has four functions: intake, compression, power, and exhaust. Let's compare - we eat food/fuel [intake]; we digest it [compression]; our cells burn the energy from the fuel [power]; we get rid of the waste materials [exhaust]. Just as a spark ignites the air-fuel mixture to set the engine in motion, our body requires a spark [a trigger] to fire up the celiac engine. Once that autoimmune engine starts, there's no turning it off. Sadly, we don't have a kill switch for it, yet. The only thing we can do is manage it properly through diet.



What is gluten?

Gluten is the generic term for the proteins found in grains. Wheat [durum, graham, kamut, semolina, spelt, emmer, einkorn), barley [malt], rye [triticale - a hybrid of wheat and rye], and most oats due to cross-contact with gluten are problematic for those with a gluten-related disorder.

I have not heard about celiac disease before, is it new?

Gluten-related disorders such as Celiac Disease, Dermatitis Herpetiformis [an itchy skin manifestation of celiac disease], Gluten Ataxia [unsteady/wobbly walk due to neurologic damage], Wheat Allergy, Gluten/Wheat Sensitivity are not new. Since the introduction of grains during the dawn of agriculture over 10,000 years ago, human-kind experienced problems. During the second century, Aretaeus of Cappadocia, a Greek physician practicing in Rome, observed and documented this condition.

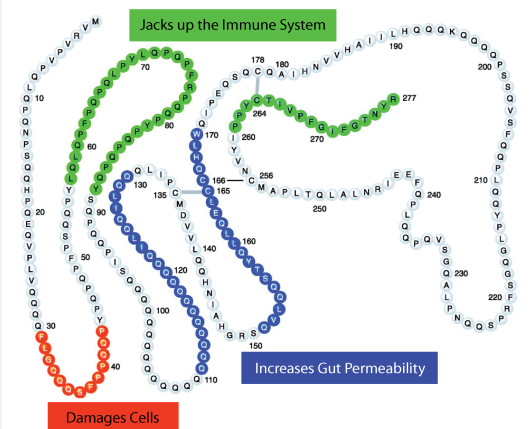
In one of his few surviving written works, "The Coeliac Affection," he describes the disease:

"If the stomach be irretentive of food and if it pass through undigested and crude, and nothing ascends into the body, we call such person koiliakos."

If you hadn't guessed, the word celiac [coeliac is the British spelling] comes from the Greek word Koiliakos which means "suffering in the bowels."



Map of a Gliadin [Gluten] Molecule



Zonulin and Its Regulation of Intestinal Barrier Function: The Biological Door to Inflammation, Autoimmunity, and Cancer
Alessio Fasano <https://bit.ly/2WQDQni>

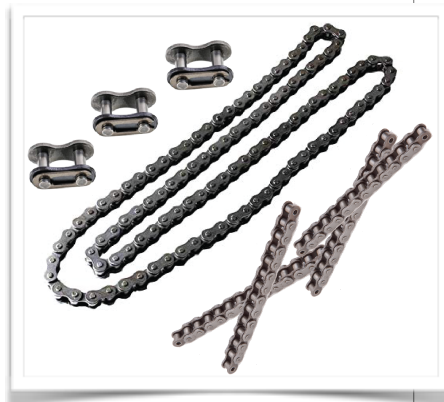
The skeletal remains of a young Roman woman buried in a 2,000-year-old tomb in Tuscany showed signs of malnutrition and osteoporosis. DNA analysis revealed she carried two copies of the celiac genes - elevating her risk factor even higher. Experts suspect this woman had untreated celiac disease. What about her diet? Carbon and nitrogen isotope analysis of the bones cannot give us specific details. Still, they suggest she would have consumed more meat, possibly freshwater fish, but limited plants [like wheat].

Why is gluten a problem?

For our body to utilize the food we eat, our digestive system breaks it down into smaller pieces called amino acids. Think of gluten proteins like the drive chain on a motorcycle. Just as the chain consists of individual links, strands of gluten are comprised of amino acids. To break down the strands into digestible amino

acids, we need specific enzymes. Those enzymes are like a chain breaker tool. To fully use that chain, we must break it down into individual links. We don't have a chain breaker tool. No human has the proper

enzymes, so the gluten remains partially digested. What's left behind are larger fragments of the gluten chain called peptides.



Engines have gaskets; their purpose is to prevent leakage of oil and water. When gaskets leak, the engine is in trouble. Our gut also has a special gasket; it's called the intestinal epithelial barrier. Unlike gaskets used in engines, our one-cell thick gut gasket is designed to open and close. It opens to allow "friendly" things to pass through like those amino acids. Yet, it also needs to keep out larger items like bacteria, viruses, and fragments of undigested gluten peptides.

Another unusual property of gluten when consumed; it tells our gut gasket to open by stimulating the release of a protein called zonulin. This opening happens in everyone but stays open longer in those with celiac genes due to excess zonulin production. This condition is called increased intestinal permeability, also known as leaky gut. Gluten is not the only thing that can create damage or cause a leaky gut. Just like an engine, when our gut gasket leaks too much, we're in trouble. Gluten sneaks past our epithelial barrier - that's when the problems start.

What happens when we ingest gluten?

We're going to shift gears (pun intended). Let's compare night clubs or bars and our bodies; today's bar crawl will feature Club 99 and The Crypt. Inside, Club 99's atmosphere is vibrant and inviting. Lots of lush, colorful plants of varied species decorate the room. Tables are neatly aligned and inhabited with diverse and cheerful guests. A beautiful antique bar provides a

stunning focal point. Jazz Fusion music plays lightly in the background. Oooo, is that Jean Luc Ponty, I hear? The exterior of the property is well-maintained too. Greeting us at the main door is a chiseled gentleman with broad shoulders, narrow waist, and well-defined biceps bulging out of his stylish Polo shirt emblazoned with a C99 logo. Their security team lurks unobtrusively and quietly in the shadows - waiting and watching. Yes, everything looks quite healthy.



The Crypt offers a much different environment. On the exterior, the building looks aged far beyond its years. Large cracks are evident in the foundation. Peeling paint reveals weathered and rotting wood; windowpanes riddled with bullet holes, a malfunctioning neon beer sign flickers randomly. A pack of cigarettes sits atop an abandoned bar stool that props open the front door. Flashing colored lights radiate through the doorway, accentuating the blistering guitars and screaming vocals of AC/DC's Highway to Hell.

The interior reveals a bleak and stormy landscape. The smell of stale beer permeates the air. A smoky haze gives the light above the pool table an eerie glow. Some questionable and quite possibly illegal behavior is taking place on a ramshackled bar. Overturned tables and bar stools litter the floor. Broken shards of glass and puddles of beer reflect the pulsating stage lights creating a Disco ball effect. Occupied by a scuffle between security and several Gliadin Gladiators gang members, the crowd is cheering and jeering as if they were at the Roman Colosseum demanding blood. It's utter chaos.



Club 99 illustrates a healthy body inside and out. Our structure is good; we have healthy skin, our intestinal flora and fauna are balanced; everyone works and plays well with others. C99's attentive and well-behaved doorman acts like a "gut gasket" should. He lets good things in and keeps bad things out. C99's security staff is well-trained and evenly tempered - like a healthy immune system. For 99% of the population, their Ninja-like immune system quickly and quietly deals with gluten without incident.

I think you'll agree, The Crypt is not a good place. Years of damage takes its toll internally and externally. Far too many unsavory characters have taken up residence there, forcing out those who would bring something beneficial to the party. Intensifying an already hostile environment, The Crypt's off duty doorman allows troublemakers inside the club. Conditions are ripe for an epic all-out barroom brawl. *"Saturday night's alright for fighting. Get a little action in."* Everything is

laid to waste when the overly aggressive security team tears up the place when dealing with the agitators. Shots are fired, broken windows, tables, and chairs become collateral damage during the altercation - our immune system does the same thing when encountering gluten. No organ is safe during these battles royale. With every ingestion of gluten, our bodies take a pounding. It's no wonder we feel like crap after eating it. Imagine the amount of damage after years or decades of these conflicts. In some cases, our bodies simply can't recover.

Just as bad environments and neglect cause a building to crumble and collapse, the same will happen to our bodies if we do not strictly follow a gluten-free lifestyle. With knowledge, commitment, and attention to our diet, we can renovate The Crypt into a thriving place like Club 99.

For an expert's description, I invite you to read this excellent 2009 Scientific American article written by Dr. Alessio Fasano, chief of Pediatric Gastroenterology and Nutrition at MassGeneral Hospital for Children and director of the Center for Celiac Research.

"Surprises from Celiac Disease" - <https://bit.ly/2WFmefu>



Image by: Steve Howard - pixabay.com