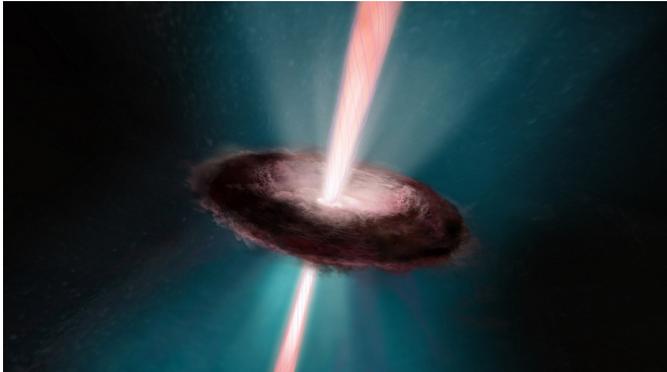


Big Bang Theory of Chronic Disease

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I borrowed the name, *Big Bang Theory*, from science – not the TV show. I used the analogy of this simplistic theory of the universe to explain my simplistic theory of the manifestation of chronic disease today.

Big Bang Theory of the Universe

The Big Bang Theory of the Universe is the prevailing explanation about how the physical universe began. I am not suggesting that the universe was created by chance alone. However, the Big Bang Theory is a human attempt to portray this phenomenon.

It's not the only theory out there, but it is a simple way to visualize the origin of infinite space. As the Big Bang Theory suggests, the universe started out about 13.8 billion years ago like an infinitesimally small balloon. Then, all of a sudden, it started expanding rapidly to the size of the cosmos by which we know it today. From that infinitesimally small start, all of space emanated.

Big Bang Theory of Chronic Disease

My Big Bang Theory of Chronic Disease attempts to simplify the inception of chronic disease. I propose a unique starting point. From this origin, different paths spread out throughout the body like a starburst going in all directions. This initial and shared beginning could be the ultimate source for all chronic diseases today. Depending on the individual's weaknesses or genetic predispositions, various chronic diseases might develop in different people. Well before a medical practitioner might diagnose any of these chronic diseases, vicious cycles already have been in place to complicate their treatment.

So, what is this starting point? What is expanding this balloon that might manifest into degenerative diseases in modern humans? This is my theory of the evolution of chronic disease. Though my particular theory has not been validated by specific randomized controlled trials, it is based on some compelling medical research.¹ I have tried to connect the dots. If it were possible to be proactive and prevent what I believe is initiating chronic disease, then imagine what could be avoided as humans age gracefully.

My theory begins with changes in the gut. Changes include (1) an increase of unhealthy microbes resulting in dysbiosis in the gut and (2) changes in the permeability of the gut lining resulting in leakage of toxic substances into the blood system.^{2,3,4,5} If these changes were to become chronic, they would become pathogenic.⁶ Then, cascading events could occur. In turn, these changes could set off many differing paths to chronic disease – my Big Bang Theory of Chronic Disease.

First Things First

Our primal ancestors rarely developed chronic disease.⁷ Skeletal remains of our distant relatives suggest that degenerative diseases were not prevalent as they are today. In fact, the few primal societies in existence today in remote areas of the world rarely develop degenerative chronic diseases.

Recent human studies have shown that diet and lifestyle are determinants of metabolic syndrome.⁸ Medical research has shown that metabolic syndrome is a precursor to many chronic diseases. Metabolic syndrome is the name for a group of risk factors, which include:

- Large waistline
- High triglyceride level
- Low HDL-Cholesterol level
- High blood pressure
- Elevated blood sugar

In addition, published papers demonstrate that when humans consume nutrient-dense foods, avoid processed foods, obtain restorative sleep, exercise efficiently, and manage stresses of all types, then all the risks of metabolic syndrome decrease significantly. Dental health as well improves significantly.^{9,10,11}

¹ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3384703/>

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5433529/pdf/BCJ-2016-0510C.pdf>

³ <http://www.altmedrev.com/publications/9/2/180.pdf>

⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4555153/>

⁵ <http://dmd.aspetjournals.org/content/dmd/43/10/1557.full.pdf>

⁶ <https://www.ncbi.nlm.nih.gov/pubmed/29098118>

⁷ <http://ajcn.nutrition.org/content/81/2/341.long>

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4588744/>

⁹ <https://www.ncbi.nlm.nih.gov/pubmed/19405829>

¹⁰ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4962497/pdf/12903_2016_Article_257.pdf

¹¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4856634/>

My Theory

Let's start off with the gut and what we put into this tube that runs from our mouth to our anus.

Gluten

Gluten is a family of proteins that is present in wheat, rye, barley, and some other types of grains. As a matter of fact, gluten could be an ingredient in many processed foods, cosmetics, prescription medications, and nutritional supplements. The human body cannot completely digest gluten. One of the remnants of the incomplete digestion of gluten is gliadin.

Gliadin

Gliadin could be one of those unique *triggers* that initiates future disease – one of those triggers of my Big Bang Theory of Chronic Disease.

Gliadin has the potential to slowly and deliberately destroy the body. Its effects are cumulative, producing chronic inflammation over time. It causes dysbiosis and opens holes in the gut lining, allowing substances to leak into the bloodstream that should never be there. Researchers have proven this damage to the gut lining occurs in every human whenever gliadin is present in the intestines.¹²

Gliadin causes a chemical reaction in the intestinal wall. It increases the reactivity of zonulin, a protein that causes the cells of the intestinal wall to separate and open large portals to the bloodstream. As cells in the one-cell-layer-thick lining of the gut separate, undigested particles of food, bacteria, and toxic substances can leak through the openings into the bloodstream.

However, the human body is resilient. The cells of the intestinal wall repair, and they replace themselves every couple of days. If gluten were not reintroduced into the diet again, then likely there would be no permanent damage from this onetime occurrence. But, the problem is a process of repetition – constantly consuming gluten as well as being exposed to other irritants.

Leaky Gut

Unhealthy leakage from the intestines into the bloodstream is known as a *leaky gut*. As I suggested, gliadin is one of the triggers that can break down the gut lining and increase harmful bacteria to overgrow. When undigested particles of food or toxic substances get into the bloodstream that never should be there, the immune system becomes activated. The immune system is like an army that is called into battle. The immune system's purpose

¹² <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4377866/>

is to get rid of foreign elements. The process to rid the body of irritating substances is called inflammation.

Inflammation by itself is normal and is necessary for a healthy body to function and heal. However, when holes in the gut lining occur regularly from continuous reintroduction of gluten in food as well as other irritants that could further damage the gut lining, inflammation could become constant. Constant inflammation is unhealthy. It affects the entire body and can cause damage to any organ or tissue anywhere in the body.

Through a complex system that is not completely understood, the immune system also may go haywire. In other words, the immune system could begin destroying healthy tissues in the body in addition to the foreign invaders. The result is known as autoimmune disease.

Chronic & Autoimmune Diseases

Chronic inflammation is the beginning of practically all chronic diseases and autoimmune diseases. Chronic and autoimmune diseases occur when (1) the gut becomes overly permeable on a constant basis, (2) chronic inflammation prevails and permeates through the blood system by means of various elements of the inflammatory cascade, (3) a genetic weakness in some remote tissue reacts to this chronic inflammation, and (4) the confused immune system starts to attack healthy tissues.

In the case of gluten, gliadin initiates the damage to the gut lining. It is important to note that other irritants from various sources do cause damage to the gut lining and to gut bacteria as well (see below). An abundance of various irritants to the gut increases the potential for chronic inflammation. Once chronic inflammation persists, chronic and autoimmune diseases begin to manifest.

The manifestation of chronic or autoimmune diseases could take years to develop from repeated insults to the body. A person probably would not know these destructive changes were slowly occurring. As a matter of fact, a person would not need to experience obvious gut symptoms such as diarrhea, constipation, bloating, or pain. A leaky gut frequently does not cause gut symptoms. As subclinical and frequent insults accumulate over time, disease may only make itself known many years after the first insult occurred long ago.

Other Irritants to the Intestinal Lining

The Big Bang Theory of Chronic Disease is not only related to gluten. Other irritants could initiate damage to the healthy balance of microbes in the gut as well as to the gut lining:

- Stress (including emotional, physical, or chemical) could be the cause. A significant chemical stress to the gut is glyphosate herbicide (Roundup) that damages the DNA in human cells, inhibits the growth of healthy bacteria, and directly causes leaky

gut.^{13,14} Stress to the body also includes over exercising, sleep deprivation and sleep apnea, and continuous exposure to low level electromagnetic fields.

- Gut inflammation caused by other things in your diet such as overly processed vegetable and seed oils, hydrogenated and partially-hydrogenated oils, processed sugars, or other junk and chemicals in foods will have a harmful effect.
- Specific medications such as non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, alcohol, narcotics, antibiotics, chemotherapy drugs, hydrogen peroxide, and birth control pills (to name a few) could result in leaky gut.
- Anything that disturbs the delicate balance of microbes in the gut could be the culprit.¹⁵

Role of Gum Disease

In addition to other chronic diseases, systemic chronic inflammation may play a role in the development of gum disease. The chemicals that are released into the bloodstream from chronic inflammation may affect the cells around teeth, making them more susceptible to bone destruction and the progression of periodontitis. Autoimmunity may play a role in the progression of periodontal disease.¹⁶

Also, overgrowth of unhealthy gut microbes as well as systemic chronic inflammation can cause an increase of unhealthy bacteria in the mouth.^{17,18,19} A combination of unhealthy bacteria in the mouth and the consumption of processed grains and sugars can feed these unhealthy oral bacteria, which will cause a unique focus of infection to occur in the gum spaces around teeth. Now, oral infection can proceed through the gum spaces surrounding the teeth and leak into the bloodstream. Unhealthy bacteria in the mouth can interact with unhealthy bacteria in the gut, and vice versa.²⁰

How could leaky gum spaces develop? Dental plaque around the teeth starts out as healthy and in a state of balance.^{21,22} A compromised immune system and unhealthy food choices could allow the hundreds of bacteria in dental plaque to get out of balance and become unhealthy.^{23,24} Then, unhealthy bacteria can proliferate and cause the progression of advanced gum disease²⁵. One of the most virulent bacteria is *Porphyromonas gingivalis*.^{26,27}

¹³ <http://www.mdpi.com/1099-4300/15/4/1416/htm>

¹⁴ <https://oehha.ca.gov/media/downloads/crn/032817tobelistedglyphosate.pdf>

¹⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5707675/>

¹⁶ <https://www.ncbi.nlm.nih.gov/pubmed/?term=10.1016%2Fj.autrev.2016.09.013>

¹⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4988452/>

¹⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4139711/>

¹⁹ <https://www.ncbi.nlm.nih.gov/pubmed/27704622>

²⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5028810/>

²¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4132376/>

²² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5034904/>

²³ <https://www.ncbi.nlm.nih.gov/pubmed/28476771>

²⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5126660/>

²⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653317/>

²⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4744328/>

²⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4276050/>

Among other self-protective measures, this bacterium produces a biofilm, which is resistant to the body's immune defenses.²⁸ As the body continues to try to fight the resistant *P. gingivalis*, chronic inflammation results. This chronic inflammation can cause the tissues surrounding the infected gum spaces to break down, allowing bacteria and other toxic elements to leak into the bloodstream. The result could be increased chronic diseases throughout the body.^{29,30,31} This is similar to the damage caused from a leaky gut. In addition to advanced gum disease, infections from abscessed teeth could cause leakage into the bloodstream.

At this point, treatment for cascading chronic diseases must include healing both the unhealthy gut and the unhealthy mouth. As the Big Bang Theory of Chronic Disease expands, there are now two or more niduses for the creation of chronic disease – the damaged gut and the damaged areas in mouth.

Take-Away Message

Our body is a marvelous and an incredibly-complex machine. It will repair and replace its tissues on a regular basis. However, when there is a constant and site-specific irritant, the body's reaction is to become chronically inflamed. Once the seed of chronic inflammation is planted and nurtured, chronic degenerative diseases ultimately result.

The first and most important action to take is to avoid whatever stokes the flames of inflammation. Remove the irritant. In this case, stop whatever is causing dysbiosis in the gut and damage to the gut lining. If infection has begun in the mouth, then this source of further body damage must be treated appropriately. The gut, the mouth, and any other source of infection must be identified and repaired. The healing process will support the overall immune system.

Repair will consist of eating nutrient-dense, anti-inflammatory foods. If there is a disruption in the healthy balance of bacteria in the gut, their balance must be restored. A healthy mouth must be maintained through an efficient oral hygiene program. In addition, consider changing lifestyle habits - start exercising efficiently, sleeping 7-8 hours each night, and practicing stress reduction techniques. If sleep is compromised because of restriction of the airway space, this is critical to have evaluated and properly treated. All these efforts and lifestyle changes could prevent chronic disease. They also could improve conditions if you already were diagnosed with a chronic disease.

It appears we have plenty of evidence that much disease begins in the gut. What you swallow, breathe, and absorb through your skin can affect the gut. In addition, how you sleep, exercise, and deal with stress can affect your gut. An unhealthy gut puts the entire

²⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4925967/>

²⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5520251/>

³⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5359961/>

³¹ <https://www.ncbi.nlm.nih.gov/pubmed/28835673>