

Dietary Intervention for Hashimoto's Thyroiditis: Auto-immune Protocol

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### Abstract

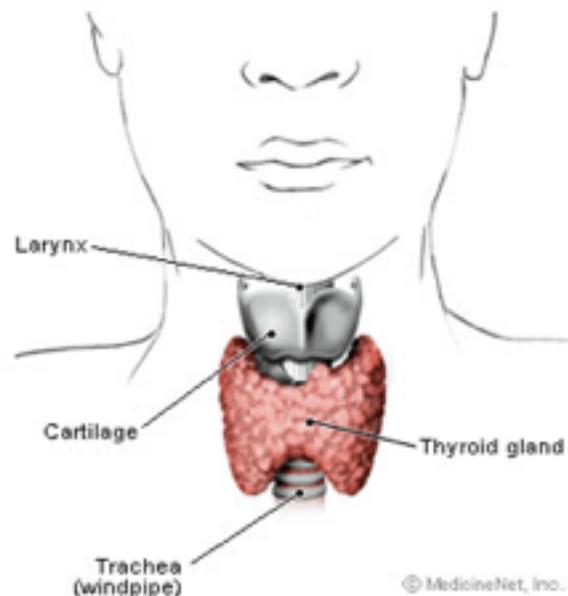
Hashimoto's Thyroiditis (HT) is an autoimmune disease in which the body attacks the thyroid. It is one of the leading causes of hypothyroid, or a low functioning thyroid. Traditional medicine only treats the hypothyroid, ignoring the underlying issue of autoimmune disease. This leaves many patients feeling no relief from symptoms, and struggling for answers. Some research indicates that a strict elimination diet, known as the Autoimmune Protocol (AIP), can offer relief of symptoms and address the underlying problems that cause the autoimmune flare up in the first place. Specifically, the AIP calls for elimination of all potential inflammatory foods: grains, legumes, dairy, nuts, seeds, and nightshades. Research suggests that a gut imbalance, or leaky gut is the root cause of most autoimmune disease, so addressing this through diet is necessary to see progress and elimination of symptoms. By eliminating inflammatory foods and allowing the gut to heal and restore, the body gets back to its proper function and eventually foods can be reintroduced once the digestive system is healthy and able to process these foods properly. There is evidence that gluten, however, should be eliminated entirely for those with autoimmune conditions. There is a high occurrence of HT concurrent with Celiac disease, and therefore gluten may need to be eliminated for the lifetime of the patient. This paper aims to illustrate the influence that diet has on autoimmune disorders, and the potential benefit of this sort of extreme dietary intervention to heal the body, and the thyroid.

*Keywords:* autoimmune, thyroid, hashimoto's thyroiditis, gluten, hypothyroid, autoimmune paleo

### Dietary Intervention for Hashimoto's Thyroiditis: The Auto-Immune Protocol

Hashimoto's Thyroiditis (HT) is an autoimmune disorder in which the body attacks the thyroid as if it were a pathogen. This, in turn, causes the thyroid function to decrease and eventually lead to the clinical disorder known as hypothyroid (under-active thyroid). Untreated, HT and hypothyroid can cause patients mild to severe symptoms ranging from hair loss, cold sensitivity, sleep disturbances, weight gain, depression, constipation, brain fog, fatigue, goiters (enlargement of the thyroid gland), and thyroid cancer. Traditionally, treatment comes in the form of synthetic thyroid hormone leaving many patients of HT to suffer from the symptoms of hypothyroid, despite their thyroid hormone levels being balanced. Further understanding about the root causes of HT and autoimmune reactions is necessary, to find an effective solution to address not just the symptom of hypothyroid, but to cure the cause of HT entirely.

For a thorough understanding of HT and thyroid disease, it is essential to understand how the thyroid itself works. The thyroid is a small gland located in the base of the neck, seen in Figure 1. It is responsible for regulating metabolism, growth, temperature, and energy, among other things. The thyroid combines the amino acid tyrosine with iodine to create three hormones: triiodothyronine (T3), Tetraiodothyronine or Thyroxine (T4), and Calcitonin (Informed Health Online, 2015). For the purposes of this paper, T4 and T3 are the true thyroid hormones. The thyroid actively produces T4, which is then partially converted to T3,



**Figure 1 (USF, 2014).**

a much more potent thyroid hormone. Additionally, thyroid-stimulating hormone, or TSH is a hormone produced in the pituitary gland of the brain that regulates the production of T4 and T3 in the thyroid, and is an important element in understanding HT (IHO, 2015). Based on this information, theoretically one potential cause of thyroid disease could be a disruption to the pituitary gland, to be addressed later.

Diagnosis of HT is typically made by a medical professional by way of a blood test. A patient usually must complain of symptoms related to hypothyroid for doctors to test for HT or have family history of thyroid disease, though some doctors will run blood tests as part of a routine physical and check for thyroid disturbances. Diagnostic blood tests should have three components:

- TSH - this sensitive test is the most accurate measure of thyroid activity, elevated levels of TSH indicate hypothyroid (<3.0 mIU/L)
- T4 - this test measures the level of T4 hormone being created by the thyroid and circulating the blood, low levels of T4 indicate hypothyroid (>1.0 ng/dl)
- Anti-Thyroid Antibodies - anti-thyroid peroxidase (TPO) antibodies attack thyroperoxidase, an enzyme that helps convert T4 to T3; presence of TPO is an indication of HT (NIDDK, 2014).

A diagnosis of hypothyroidism and/or HT usually leads to a long journey of supplementation with synthetic hormones, most commonly Levothyroxine (generic) or Synthroid (name brand) (Baron-Faust, 2003). This synthetic thyroid medication contains the necessary T4 hormone, which the thyroid is not producing enough of. However, if the thyroid is not functioning as it should, one is left to wonder how it is going to convert the T4 to T3. To combat this, some have

turned to other thyroid medications such as Armor and NatureThroid which supplies both T4 and T3, and found relief from symptoms.

However, none of this addresses the true cause of HT, which is not very well understood in the medical field. This paper aims to uncover some of the existing research about HT and how it is related to a larger medical problem starting in the gut. The idea is that dietary intervention is the best route to a symptom free life, and there have been proven cases of turning HT around and ridding the body of the antibodies that indicate autoimmune response through a process called the Autoimmune Protocol (AIP). The AIP calls for a strict elimination diet to soothe gut inflammation, rebuild digestive health, and address thyroid and other autoimmune diseases from a holistic approach. The elimination calls for exclusion of gluten, grains, dairy, eggs, nuts, legumes, and any other potential inflammatory foods until it can be determined what causes the autoimmune response in the body. Once the autoimmune response is soothed, patients can potentially stop taking medications and essentially cure their thyroid disease, though life-long dietary changes may be necessary. Most notably, the exclusion of gluten from the diet could be a huge help to most patients suffering from HT, with this being the potential disruptor from the start and proven links between gluten intolerance and HT. Additionally, understanding of the pituitary gland's role in this system can help in understanding the best way to heal the thyroid and autoimmunity. Approaching thyroid disease and autoimmunity from a holistic level and seeing the body as an interconnected system is the most effective way to address disease, particularly starting with diet.

### **Methods**

Articles were collected from three databases: PubMed, Google Scholar, and LIRN. These databases were searched using the keywords: 'hashimoto's thyroiditis', 'diet', 'autoimmune paleo', 'autoimmune protocol', and 'gluten'. in a variety of combinations. The gathered articles were then curated to find those most related to showing the relationship that food has with the autoimmune hashimoto's thyroiditis. Additionally, books were searched for in the Greenville County Library system using keywords "autoimmune".

### **Results**

Many resources were uncovered on the subject of autoimmunity and diet, though not all exclusively about HT, they all covered it as one of many autoimmune diseases that can be addressed by dietary intervention. There are a number of various takes on the AIP but the diet is essentially the same throughout all methods. Most importantly, gut health is at the root cause of most autoimmune solutions. To start, a discussion on the gut and digestive health will be presented before a thorough breakdown of the AIP with supporting cases for elimination of particular elements will be covered. This will be followed by a more in depth analysis of gluten and the case for life-long elimination of it from the diet for those with HT and possibly everyone. Finally, other potential links and related research will be covered.

#### *Understanding the Gut*

Research suggests that the root of all autoimmune disorders lies in the gut. Most autoimmune responses are a reaction to a leaky gut. This occurs when gut health is

compromised, and your intestines are unable to absorb nutrients as they should (Myers, 2015). A leaky gut allows things that are not supposed to be in the gut in, things like toxins and microbes, and lets things that should be there such as partially digested foods and things that would be passed out through elimination out into the bloodstream (Myers, 2015). Many elements can lead to a leaky gut to begin with, underlying food allergies, regular usage of antibiotics, some medications and lifestyle factors can all lead to yeast and/or bacterial overgrowths that cause the lining of the gut to be disturbed and lead to autoimmune diseases down the road. Childhood factors such as frequent ear infections or lack of proper bacteria from breast feeding can also lead to a pre-disposal to leaky gut (Myers, 2015). Functional medicine presents four steps to gut healing:

- remove - removing any elements that are disrupting the digestive environment is the first necessary step, this is where the AIP comes in, removing all potential allergens and inflammatory foods
- restore - restoring good digestive enzymes into the system will help digest food properly since digestive enzymes have been compromised due to leaky gut
- reinoculate - rebuilding healthy bacteria is the next essential step, taking probiotics in the form of capsules, with careful consideration that fermented foods act actually as prebiotics and these should be excluded until the good bacteria are restored
- repair - one often overlooked element is that the gut lining needs to be rebuilt, one amino acid, L-glutamine is particularly helpful in restoring gut lining; additionally Omega-3s, licorice, and aloe can help soothe inflammation (Myers, 2015).

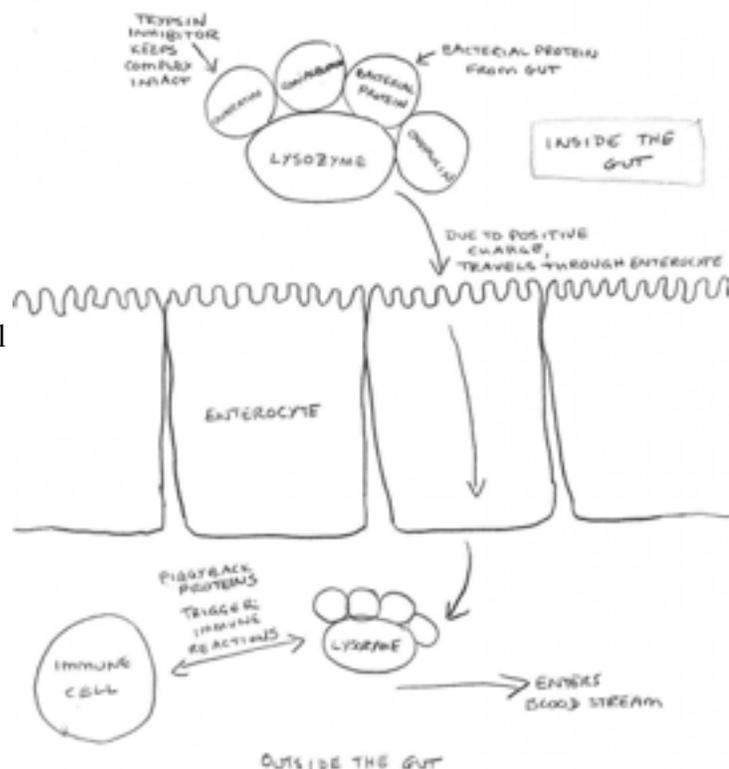
So understanding the role that gut health has on autoimmune disorders, it is possible to move forward in addressing the steps to healing the gut.

### *The Auto-Immune Protocol*

The AIP is most famously cited and most thoroughly explained by author Sarah Ballantyne in her book, *The Paleo Approach*. She breaks down all of the elements of the diet and offers scientific explanations for each element of the diet that should be eliminated which will be mirrored here. Essentially, the premise behind the AIP is to eliminate any foods that could be potential allergens or inflammatory foods that could disrupt the gut on a regular basis in an effort to reveal any underlying allergies that could be causing autoimmune reactions, or just to eliminate these foods temporarily until the gut heals and they can be digested when the digestive system is at its prime functioning level.

### *Eggs and Dairy*

Eggs are often considered a whole protein source and are very important food sources on the traditional paleolithic style diet, however, in the cause of autoimmunity they are best avoided, at least until the gut health is restored. Egg whites, in particular, contain enzymes intended to protect the



**Figure 2 (Ballantyne, 2013).**

yolk during embryo development, these enzymes can break up protein chains rendering the smaller chains useless; one enzyme in particular that is troubling to those with autoimmunity is lysozyme (Ballantyne, 2013). Lysozyme has the ability to pass through the digestive system with ease, and will latch on carrying other proteins and bacteria with it across the gut-barrier, leading to a “leaky” gut syndrome in which proteins and elements not usually able to pass into the gut are able to with this enzyme, Figure 2 provides a visual of this process (Ballantyne, 2013). Dairy is a very common allergen, and for that reason is best avoided, at least initially, on the AIP. Other reasoning for excluding dairy are that milk contains lactose which is poorly tolerated by most adults, it increases mucus production and irritate the gut lining, it has protease inhibitors which can contribute to leaky gut, and it is insulinogenic causing spikes in blood insulin levels (Ballantyne, 2013). In addition, dairy products can mimic gluten the body and therefore cause issues with inflammation and immune response (Myers, 2015).

### *Nightshades*

Nightshades such as tomatoes, eggplants, white potatoes, pepper and chilies should be avoided for the protocol and potentially for good. The main reason for such is the high level of lectins in these plants which resist digestion and interact with proteins around the intestine (Ballantyne, 2013). Tomatoes in particular have a particular lectin, agglutinin, which stimulates the production of antibodies (Myers, 2015), and it can get into the bloodstream quickly contributing to leaky gut (Ballantyne, 2013). Additionally, nightshades contain high levels of something called saponins, particularly glycoalkaloids which can feed bad bacteria in the gut and enter the bloodstream and destroy red blood cell membranes (Myers, 2015). Saponins

stimulates autoimmune response and inhibit a key nerve function enzyme, acetyl cholinesterase (Ballantyne, 2013). Capsaicin, the element that gives peppers their spice, is considered an irritant to skin, eyes, and mucous membranes and can increase gut permeability (Ballantyne, 2013).

### *Nuts and Seeds*

Nuts are removed from the diet temporarily on the basis that they are one of the most common food allergens, and because of this, they should be eliminated to determine whether or not they are a sensitivity for the patient (Ballantyne, 2013). While they do have high levels of Omega-6s which can be an issue for some if the balance of Omega-3 to Omega-6 is off, and also contain lectins and phytic acid, but these should not cause any major disturbances (Ballantyne, 2013). Seeds, on the other hand do not want to be digested. Inherent to their purpose is to make it through the digestive system in tact, to eventually be eliminated and eventually turn into another plant. They contain enzymes called "amylase inhibitors" which prevents the breakdown of the seeds and can cause inflammation, stress out the gut, and activate the immune system (Myers, 2015). In addition, seeds do have levels of lectins which may cause stress on the pancreas and disturb the body's ability to absorb other nutrients (Myers, 2015).

### *Grains and Legumes*

Lectins are the most well understood aspect of grains and legumes leading to gut irritation. Lectins are not broken down during the digestive process because our bodies' natural digestive enzymes are unable to digest the lectin proteins, and because they contain protease inhibitors which prevent the enzymes from being able to break down and digest proteins

(Ballantyne, 2013). Lectins cause leaky gut by first tricking the gut lining enterocytes into treating it like a simple sugar, allowing it to pass from the inner-gut to the outer-gut, activating immune response and causing the immune system to attack not long the lectin but also the enterocytes, creating holes in the gut lining (Ballantyne, 2013). Additionally, grains and legumes are high in saponins, which can create holes in the surface membrane of the gut and cause inflammation (Ballantyne, 2013). Protease inhibitors neutralize digestive enzymes in an attempt to avoid digestion, so the body's response is to secrete more digestive enzymes throwing off the balance of enzymes and potentially leading to the destruction of the enterocytes creating a pathway for leaky gut and provoke an immune response (Ballantyne, 2013). Gluten is the largest offender in the grains category, which will be further discussed in another section.

### *Sugars and Sweeteners*

Sugars and sweeteners are complex carbohydrates which is necessary for energy, but the SAD has way more than is needed in a given day, upwards of 500g per day, which causes the body to have to store the unused portion as fat (Ballantyne, 2013). This elevates insulin levels, and chronically high insulin levels can eventually lead to diabetes and increase the risks of cancers and other diseases (Ballantyne, 2013). Avoiding added sugars and refined sugars on the AIP prevents excessive amounts of carbohydrates in the body, assuming that the necessary levels are easily attained from vegetables and fruits. It goes without saying why artificial sweeteners should be avoided on the AIP, as they are loaded with chemicals and provide no nutritional value. Some natural sweeteners such as agave are pure fructose, which can tease the body into thinking because it is sweet, that it needs to release insulin to digest the glucose before realizing there is

no glucose to digest (Ballantyne, 2013) throwing off this balance can in the long run disturb insulin levels in the body. So, in the event that sugars are desired, it is best to gain them from natural sugar sources such as honey, maple syrup, or molasses as they all maintain glucose-fructose levels that the body is able to easily digest (Ballantyne, 2013). However, it is important to consider that in the case of any sort of overgrowth, bacterial or yeast, sugars should be avoided entirely, even fruit based and starchy vegetables that are converted to glucose as these can feed the overgrowth and lead to further battles to fight them off.

#### *Alcohol and NSAIDS*

Alcohol may have some benefit in terms of reducing risks of heart disease and Alzheimers, but in the case of an autoimmune condition borne of leaky gut, alcohol needs to be avoided. Alcohol creates tiny holes in the epithelial cells which can allow some endotoxins into the body (Ballantyne, 2013). Alcohol feeds negative bacteria, and can allow them to get into the bloodstream through the holes and create an autoimmune response even in very small amounts (Ballantyne, 2013). For these reasons, alcohol is best avoided during the length of the protocol. It may be possible to eventually reintroduce small amounts of alcohol as long as it is not grain based once the gut has healed, but until then it is best avoided. Cooking with alcohol can be a tricky subject in this matter, but it is best to avoid it initially and maybe consider it again after some healing has occurred. Non-steroidal anti-inflammatory drugs (NSAIDS) should be avoided on the AIP one, because of their chemical makeup, but additionally because of their propensity to destroy the body's natural process of fighting off inflammation.

*Other Food Additives and Chemicals*

In addition to all of the elements explained above, avoidance of all chemical and even some natural food based additives are best avoided. Because their impact on the body is not very well understood or researched, the problems they may cause is hard to predict. Gums such as guar and xanthin gum, lecithin, carrageenan, act as emulsifiers and thickeners in recipes and are hidden in a lot of prepared and canned foods (Ballantyne, 2013). They are complex sugar molecules that are very hard to digest and therefore anyone suffering from leaky gut should avoid them (Ballantyne, 2013). Additionally, the process from which they are derived gives indication as to why they are not the best things to be eating regardless of health conditions:

- Guar gum - derived from guar bean (legume) and high in glycosides
- Carrageenan - derived from a raw seaweed that is dried, ground, and chemically treated with something akin to potassium hydroxide
- Xanthin Gum - bacteria grown artificially in a sugar liquid, precipitated using isopropyl alcohol, then dried and ground into powder
- Cellulose Gum - extracted from wood pulp then treated with sodium hydroxide to make it water soluble and then chloroacetic acid to remove impurities
- Lecithin - byproduct of soybean oil production containing a cocktail of inflammatory constituents like glycolipids, triglycerides, sterols, and carotenoids (Ballantyne, 2013).

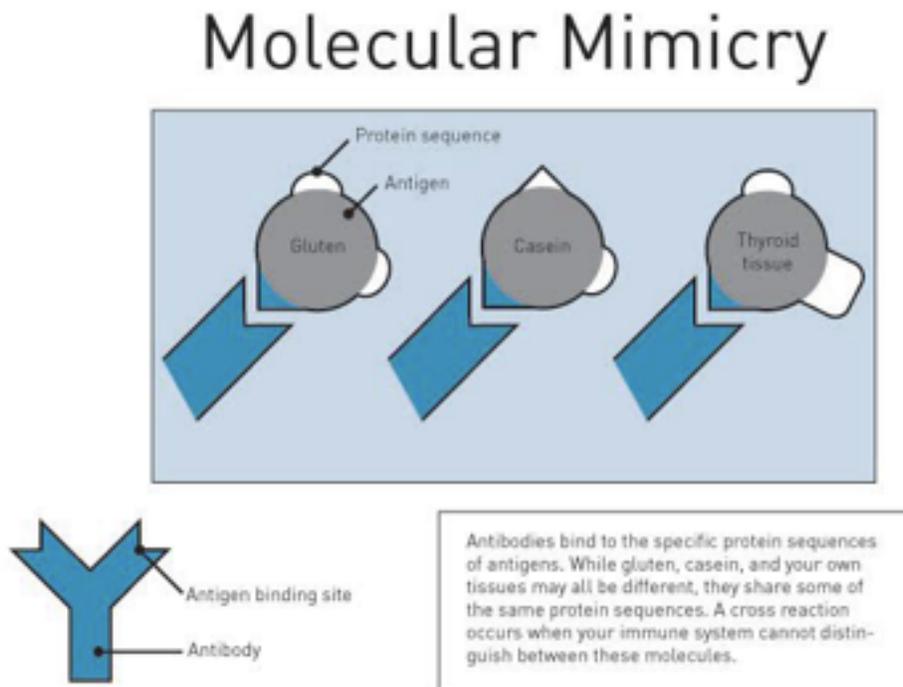
With all of the given information about the various elements of the AIP that should be eliminated, it is easy to see how daunting of a task it can be to take on the protocol, but having

the scientific explanations behind the exclusions of these dietary elements makes it easier to see the importance of their elimination.

*Gluten: The Biggest Problem*

Gluten, like other grains, is high in lectins, saponins, and protease inhibitors (Myers, 2015). This is not the sole reason gluten causes issues, however. Something called molecular mimicry is to blame for some of the problems caused by gluten - large pieces of gluten get into the bloodstream due to the leaky gut and the body sees this as a foreigner and begins to attack the gluten, but it can also cause antibodies to attack our tissues (Blum, 2013). Gluten is a protein found in wheat, barley, rye, kamut, and spelt though can sometimes also show up in oats, rice,

quinoa, buckwheat, and millet unless they are certified gluten free (Blum, 2013). Gluten closely resembles many of the tissues in our body, as seen in



**Figure 3 (Myers, 2015)**

Figure 3, making molecular

mimicry easier (Blum, 2013). This reaction is caused by antibodies, specifically anti-gliadin antibody (AGA) and gladden antibody (DGA), which can be tested for to find out of celiac

disease, or gluten allergy, is definitely a part of the autoimmune condition (Blum, 2013). Based on current scientific evidence, anyone with a positive test result for AGA or DGA should stop eating gluten indefinitely, as it can develop further into other autoimmune diseases like HT, Grave's disease, multiple sclerosis, or rheumatoid arthritis (Blum, 2013).

Some patients of HT do not test positive for AGA, which could indicate a food sensitivity rather than an allergy. Food sensitivities are far more complex than allergies, as they elicit no histamine response or immunoglobulin E (IgE) a food-specific antibody, though the symptoms are similar, the damage is harder to detect and can go unnoticed for a while (Lieberman, 2007). Most doctors testing for gluten allergy or celiac will test only for the IgE response, however those with intolerance may show AGA, which unlike IgE does not trigger histamine response, but rather chronic inflammation that leads to leaky gut (Lieberman, 2007). So asking doctors to test for the sensitive AGA and IgE may be more beneficial and prevent full on HT from becoming an issue at the first signs of symptoms. Testing may not be necessary though, as variances in laboratories and testing results may vary from person to person, usually personal experience is the best way to determine if a patient benefits from eliminating gluten (Vojdani, 2015), though a tedious process, the results often end up more impactful.

### *Celiac and Hashimotos*

Many studies have found a correlative link between autoimmune thyroid disease and gluten sensitivity, suggesting that the cause of autoimmune disorders may just be gluten. One 1994 study found 4.8% of patients with autoimmune thyroid disorder to test positive for celiac disease (Collin, 1994). Another study in 2001 found 3.2% of patients with autoimmune thyroid

to have full onset celiac disease as well (Lieberman, 2007). Another study in 2003 tested 400 patients with either Grave's or HT and found that 5.5% tested positive for IgA, indicating gluten sensitivity (Akca, 2003). Yet another study published in 2015 found that 29% of patients with positive gluten sensitivity developed autoimmune disorders, most commonly Hashimoto's over the course of the ten year study (Carroccio, 2015). One study found 43% of HT patients tested to have potential celiac disease (Valentino, 2002). These findings all suggest that gluten plays a huge role in autoimmune disorders, specifically related to HT. Any patients suffering from HT should most certainly eliminate gluten from their diet.

### *The Case for Dietary Intervention*

Dietary intervention has proven success in not only resolving the symptoms of autoimmune thyroid disorders, but in some cases even eliminating the disease all together. One case study found that a man with diagnosed celiac disease, diabetes, and HT was able to reverse his abnormal laboratory findings after a four-month gluten-free diet with supplements of vital minerals and vitamins (Schreiber, 2011), showing that even just gluten-free diet can make a huge difference. Another study compared patients need for T4 supplementation on a gluten-free diet to those not following a gluten free diet, with those patients adhering to a gluten-free diet needing lower levels of T4 supplementation to reach normal levels of TSH (Virilli, 2012). Studies continue to come out suggesting the ability of a paleolithic-style diet to prevent diseases (Rocz, 2012). Additionally, a number of books and resources exist in support of the AIP or something similar to cure autoimmune diseases. *The Autoimmune Paleo Cookbook*, by Mickey Trescott is a great example and resource for anyone embarking on the AIP, she follows the guidelines set by

Sarah Ballantyne and creates a cookbook full of delicious and greatly varied recipes while also including some information about her journey with HT, how she healed her thyroid on the diet, and some of the science behind the AIP (Trescott, 2014). *The Wahls Protocol* is another similar approach that is nearly identical to the AIP and offers insight into the science and reasoning behind the diet and provides first hand as well as other accounts of people curing their autoimmune disorder with the dietary changes (Wahls, 2014). A number of bloggers and internet personalities also make the case for following the AIP with success in healing their autoimmune disorder to a point that they no longer rely on the medications.

#### *Other Factors Contributing to HT*

While studies all suggest that the main element playing into HT are dietary, and specifically, gluten related, there are other aspects that contribute to HT diagnosis. Genetics are a huge aspect of thyroid disease, as it is one that tends to run in the family, especially autoimmune (Myers, 2015). Curiously, women are biologically more prone to thyroid disorders and therefore HT, with one study proving this link and attempting to explain the prevalence of the gender discrepancy (Merrill, 2015). Additionally and more largely, environmental triggers play a huge role in autoimmune responses. Environmental factors include everything from toxins, infections, and lifestyle factors.

#### *Toxins*

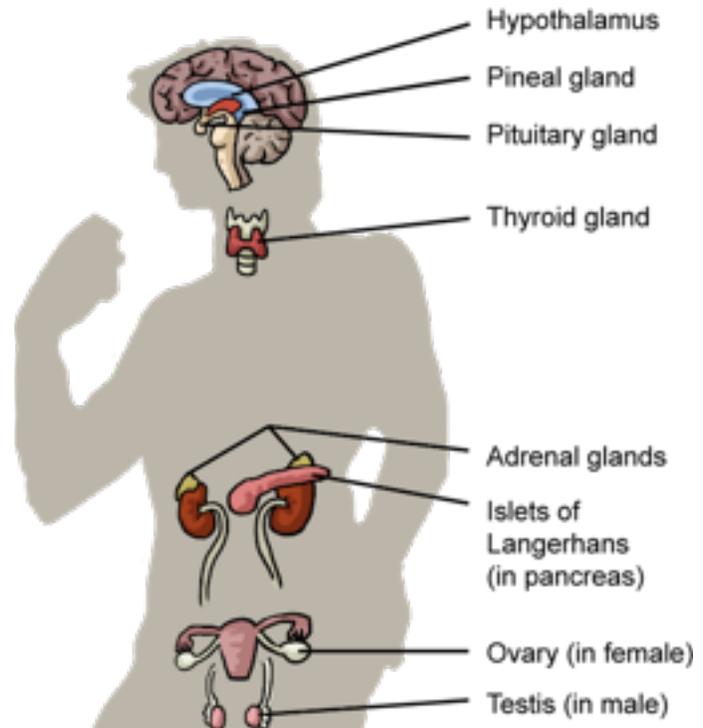
Toxins are all around and sometimes hard to avoid, but exposure to them can be limited. Studies have shown that environmental toxins in the air, specifically industrial chemicals and

heavy metals, can be absorbed and carried in the bloodstream of people living in cities with high pollution levels (Myers, 2015). Toxins in the air and the environment are possibly to blame for irritating an autoimmune response, further causing inflammation in the body (Myers, 2015). Some possible ways to avoid some of the unnecessary toxins are to filter water and air at home, buying clean organic foods, avoiding toxin-loaded body care products and opt for all natural alternatives (Myers, 2015). The liver, in particular carries the load for toxins as the main detoxifying organ in the body (Blum, 2013). Heavy metals like mercury and lead can be found in body care products, amalgam fillings, as well as some water and food supplies; there is evidence that mercury in particular accumulates in the thyroid gland and is one cause of autoimmune thyroid response (Blum, 2013). Many vaccines also contain heavy metals, so using these wisely is advised. Pesticides, plastics, and medications are another major source of these toxins and are best to be avoided when at all possible (Blum, 2013).

### *Stress*

Stress plays a huge role in the body's ability to heal itself. When it is under stress, it makes it harder for the body to perform the necessary immune functions to fight off inflammation. Stressful situations, both physical and emotional, call on the body to create cortisol, which causes inflammation and weight gain (Myers, 2015). Stress is actually entirely physical, not just in your head, with noticeable and observable changes that occur in the adrenal system: release of hormones is stimulated by the pituitary gland, these hormones include cortisol, aldosterone, and DHEA (Blum, 2013). Again, the pituitary gland is responsible for controlling hormone release, and in the event of adrenal fatigue could perhaps not be functioning properly.

With the thyroid being a part of the endocrine system, understanding the link between the various parts is important to understanding the role of the thyroid in the body, see Figure 4.



**Figure 4, (Schmoop, 2015)**

### **Discussion and Conclusion**

There is growing interest in the impact that the Standard American Diet (SAD) has on overall health and wellbeing, so it is no wonder that more research is coming out showing positive correlations between autoimmunity and diet. The heavily processed and refined foods that are such a staple in diets these days are likely to blame for the health problems on the rise around the world. Current research suggests that autoimmune thyroid diseases such as Hashimoto's Thyroiditis is indeed linked to some dietary influence. As is evident by the studies presented here, the hypothesis is supported that anyone suffering from HT or other autoimmune disorders could benefit from, at the very least, elimination of gluten from their diet entirely. All of the evidence points to the inflammation of the gut and leaky gut being caused by gluten and exacerbated by it. The body's tendency to attack gluten and bodily tissues in the phenomenon of molecule mimicry is particularly compelling evidence that gluten is not good for the body,

especially not for those with existing autoimmune conditions as it further stimulates an inflammatory autoimmune response. By eliminating gluten, a large number of people have been able to either lessen their symptoms or even entirely cure their bodies of the autoimmune disease. By doing so, patients can find the relief from symptoms they search for, as well as become less reliant on medication to supplement their thyroid function.

One important link that can be drawn here, as well, is that of the importance of treating the whole body as a system rather than seeing individual parts working separately. The world of holistic medicine and functional medicine sees the body in this manner, as one cooperative machine. When one part is off, the other parts will not work properly either. Conventional medicine tends to address merely the particular part that is not working, in the case of HT, the thyroid, by providing synthetic thyroid hormone. This works, briefly, but many symptoms remain and oftentimes worsen as the root cause of autoimmunity is not addressed. With this understanding, it is possible to see the link between diet and lifestyle factors as well. The food that is consumed, as well as lifestyle and environmental factors play a huge role in overall wellness. Exposure to toxins through the air, water, products we use and consume can wreck the body. Stress can prevent the body from healing itself and actually encourage more of an autoimmune inflammatory response. By adopting healthy lifestyle habits such as regular exercise, stress reducing techniques such as meditation or yoga, and using natural products in the home to avoid exposure to toxic chemicals patients can also find some relief and support the process of healing their autoimmune disease.

### **Recommendations**

More research is constantly being done on the topic of autoimmunity, as more and more people are effected by it. However, more information about the specific action of gluten on the thyroid would be helpful. Additional information about the relationship between the pituitary gland and its potential to be effected by autoimmune responses would be interesting to see as well.

As for patients, following the autoimmune protocol can seem daunting, however a number of resources exist. Seeking out others who have gone through the process is helpful. If not in person, it is likely to find someone online through help groups. A number of books, websites, and blogs are constantly being added on the subject, and there are more cookbooks coming out all the time on AIP friendly recipes so it is getting easier. Though the hardest part is getting started, once you do the benefit of feeling better is worth it. Cutting out gluten alone can make a huge difference in the way patients feel, so if the full AIP seems to difficult, this one step can possibly see improvements in health as well. As always, seek help from a medical professional when performing any drastic lifestyle or dietary changes such as this AIP.

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