The Optimal Wellness Center

GLUTEN SENSITIVITY – By Dr. Dan Kalish

INTRODUCTION

There is no more contention around any health issue than the subject of how to choose foods that are right for you. People who want to eat healthy, nutritious foods are frequently confused about what to do. Many follow what they assume are healthy diets with the best intentions, only to unwittingly be causing health problems by eating foods that are harmful to them. The following discussion of this complex and misunderstood issue provides a starting point for making sensible food choices based on science, not opinions. The focus of this discussion will be on food intolerance and food allergies with a special emphasis on the newly discovered condition referred to as *sub-clinical* or hidden gluten intolerance. The purpose of this discussion is to help you understand the importance of eating foods that are well tolerated and to teach the value of avoiding those foods that can lead to health problems.

When it comes to eating the right foods, it is difficult for even the most well educated person to understand all the different opinions presented by doctors, nutritionists, fitness experts, magazine articles, etc. It is clear that there is little to no consensus on what constitutes a healthy diet or how to go about choosing foods wisely.

There are dozens of diets to help a person lose weight, enhance athletic performance, or incorporate foods such as soy products to help hormonal balance; in fact, there are diets for every imaginable purpose, but sorting through the contradictory advice has become so challenging that many people simply give up. Each week the media reports more and more information about the beneficial aspects of certain foods and the harmful attributes. Even the official government recommendations changed recently and the new "food pyramid" has replaced the old four food groups. The challenge is to wade through all the available information and find what is right for each of us as individuals.

First and foremost, any diet related advice must be based on sound physiological principles, not on personal experiences, preferences, current fads or product marketing. Science can guide us in terms of explaining the basic requirements for normal human physiology and function when it comes to how to eat. Additionally, there are sophisticated laboratory tests available that screen for food intolerance and food allergies to determine what specific foods are right for you. These lab tests can be used by anyone seeking to determine reliable, science-based dietary recommendations.

There are two general topics to investigate in determining the best diet for you. The first subject is coming to an understanding of the basic physiological principles around food and diet that apply to all of us. Scientists have known for decades that proper blood sugar control is absolutely required for maintenance of appropriate fat levels, to have good cognitive function, and to stimulate healthy immune function. The second issue each of us must investigate is what specific foods are harmful and which foods are well tolerated and health promoting for our unique body chemistry.

The Functional Adrenal Stress Profile tests cortisol and DHEA levels, revealing valuable data on how well you have maintained your blood sugar control over time. Similarly, there are diagnostic tests available to evaluate your unique biochemistry and how you react to specific foods.

GLUTEN

I will now address the subject of sub-clinical or hidden gluten intolerance. This recently discovered health problem is at epidemic proportions in certain populations in the United States and sadly is largely unrecognized. Later in this section, I will discuss lactose intolerance, sucrose intolerance and the subject of food reactions in more detail.

DEFINITION OF SUB-CLINICAL

Sub-clinical means hidden. In other words, there are often no obvious symptoms that would direct a doctor or patient to suspect sub-clinical conditions. Since symptoms aren't obvious and sub-clinical gluten intolerance often goes undiagnosed or misdiagnosed, many people can suffer from the health consequences related to sub-clinical gluten intolerance without understanding the true

cause of their problems. By their very nature, sub-clinical problems are hard to recognize and frequently go undetected despite the best efforts of health professionals and patients.

DISCOVERY OF SUB-CLINICAL GLUTEN INTOLERANCE

The condition of sub-clinical gluten intolerance was first documented in the United States by Dr. William Timmins' clinical observations as well as those of other physicians involved in treating patients with chronic fatigue, weakened immunity, and environmental illness. Over the course of many years, there has been continual work to uncover the nature and extent of this problem in the United States and Europe. In 1994, a technological breakthrough in the form of a highly specialized salivary test for sub-clinical gluten intolerance made more comprehensive investigation into this problem possible.

THE FIRST TESTS FOR SUBCLINCIAL GLUTEN INTOLERANCE

The first tests for sub-clinical gluten intolerance in the United States were run on a large group of chronically ill patients. These patients had been previously unresponsive to all known treatments. Through laboratory research of this patient population of chronically ill individuals, it had become evident that they all suffered from some hidden inflammatory condition that had yet to be identified. The observation that there was a genetic component to the condition narrowed the range of possible explanations. At one point Dr. Timmins realized there could be a connection with the diets of this select group of patients and their unknown condition. When the initial salivary tests for sub-clinical gluten intolerance were run on several hundred people from this population, 80-85% tested positive. This outstanding discovery has now been demonstrated time and time again with a wide range of patients.

In the last five years through testing thousands of patients the subtleties of this condition have been gradually understood. The evaluation process has become even more comprehensive and many of those people with this condition who may have gone undiagnosed in the past can now be accurately tested.

RELATIONSHIP TO CELIAC DISEASE

Sub-clinical gluten intolerance is often confused with a medical condition called celiac disease, celiac sprue or non-tropical sprue, sometimes referred to as gluten enteropathy or gluten intolerance. The reaction to gluten in celiac disease is similar to sub-clinical gluten intolerance, except as to the degree of intensity. Comparing sub-clinical gluten intolerance to celiac disease is like comparing first-degree sunburn from a day at the beach to a third degree burn from a fire victim. They are both burns, but vastly different based on the severity or degree of damage.

Celiac disease is not hidden, or sub-clinical, and as such it is easier to diagnose. A person with celiac disease may have blood in their stool or experience disabling pain when they consume gluten-containing foods. Other symptoms of celiac include steatorrhea, which is undigested and unabsorbed fat in the stool; and dermatitis herpetiformis, a skin condition. These obvious symptoms often lead doctors to recognize those with celiac in childhood when grains are first introduced in the diet. Others with celiac disease are not diagnosed until the adult years. In addition to the clinical presentation, celiac disease can be detected by a blood test and confirmed with a biopsy of the small intestine. The clear signs and symptoms of celiac disease make its identification relatively straightforward. Sub-clinical gluten intolerance, however, is difficult to diagnose based on symptoms alone.

GLUTEN/GLIADIN

What exactly is sub-clinical gluten intolerance? Sub-clinical gluten intolerance refers to exposure to the gliadin molecule and to a specific inflammatory reaction taking place in the small intestine of afflicted individuals. In fact, gliadin intolerance would be a more scientifically accurate term than gluten intolerance to refer to this condition. Gliadin is a polypeptide, a long chain of amino acids, which is present in the gluten protein portion of certain grains and also in soybeans.

This subject is confusing and there is much misinformation about gluten and gliadin. To clarify, gliadin, the molecule that causes the problem, is present in some, but not all gluten containing foods. **People with this problem must avoid glutens from the grains of wheat, rye, barley, kamut, spelt, teff and couscous.**

Some of these grains have lower concentrations of both gluten and gliadin than wheat does, but any food containing this specific gliadin, even from a lower concentration food source, is not well-tolerated by people with sub-clinical gluten intolerance.

This dietary restriction eliminates bread, pasta, bagels, and cereals. There are rice and almond based breads available, usually found in the refrigerated section of your local health food store. There are also rice, yam, and corn-based noodles, and cereals, crackers and other gluten free substitutes on the market.

SAFE GLUTENS

Rice, corn, buckwheat, and millet have glutens, but the glutens in these foods do not contain the gliadin molecule that can provoke the inflammatory reaction, therefore they are usually safe. Other safe grains include quinoa and amaranth. In some cases people are allergic to rice, corn, buckwheat or millet, independent of the reaction to gluten/gliadin. Reading labels can be very misleading; don't trust them. Some companies list their products as gluten free, without understanding the scientific basis of the problem with gliadin. For clarity of communication sub-clinical gluten intolerance will be used to refer to this sensitivity to gliadin in the rest of this discussion.

SOY

Soybeans are another food that many people with gliadin intolerance react to. It is best to avoid all concentrated forms of soy protein such as soy protein powders, tofu, and tempe while you are first eliminating gliadin and then to reintroduce it back into the diet at a later time to see how reactive you are to soy. Even though soy has gotten a lot of attention in terms of its ability to help women with hormonal imbalances and bone loss, this does not hold true for those women who are gluten intolerant as soy can actually cause inflammation and ultimately exacerbate hormonal imbalances and accelerate bone loss. Soy products can be very helpful for women who tolerate gliadin and have no allergy to soy. Much of the original research on the benefits of soy comes from Japan and China where gluten intolerance is not as common as it is in the United States. Additionally, the traditional diet of these Asian countries is rich in foods that help balance the negative issues associated with soy consumption.

So, if you have sub-clinical gluten intolerance what can you eat? As already mentioned, rice, corn, millet, quinoa, amaranth, oats, and buckwheat are ok, unless you are allergic. There has been some debate about whether or not oats are "safe," and while they do contain a small amount of gluten, it usually does affect most gluten sensitive people and can therefore be tolerated unless one experiences any adverse symptoms. With sub-clinical gluten intolerance you can also safely eat any type of meat, poultry or fish, including chicken, turkey, beef, pork, lamb, tuna, salmon, etc. Any kind of vegetable and any type of fruit is o.k., as are all beans, except in some cases, soybeans may be a problem.

TREATMENT

Obviously the main treatment for this problem is total avoidance of the offending gluten containing foods. In addition to this dietary change you can help decrease the inflammation associated with the gluten reaction with several natural products. Hawthorne Berry extract can be used for the first 30 to 60 days of being gluten free to reduce inflammation and soothe irritated tissue in the intestinal tract. Deglycerized licorice root can also be used to assist in the healing process by further reducing inflammation and helping protect irritated tissue.

Most people don't feel better immediately after eliminating gluten from their diets, as it may take 30 to 60 days for the inflammation to subside and up to 9 to 12 months for the lining of the small intestine to heal. On rare occasions an individual may experience significant improvement within weeks of beginning on a gluten free diet. In certain cases people may feel considerably worse upon initially starting a gluten free diet. This is usually due to unidentified food allergies. For most people with this food intolerance, by around 6 to 9 months of being gluten free, noticeable changes have taken place.

PHYSIOLOGICAL EFFECTS OF SUB-CLINICAL GLUTEN INTOLERANCE

Following are some of the physiological changes that result from sub clinical gluten intolerance.

In those with sub-clinical gluten intolerance gliadin causes a mucotoxic inflammatory reaction as it comes into contact with the wall of the small intestine. This reaction usually goes unnoticed at first. In fact, this low-grade inflammation may go undetected for years or even decades before it results in the expression of symptoms. The ultimate effect of this hidden wear and tear is the slow destruction of the healthy mucosa, or lining tissue of the small intestine. In some cases there may be symptoms in childhood such as allergies, asthma, reoccurring infections, a constant upset stomach, or milk intolerance. Often these symptoms fade in the early adult years only for the problem to reappear when a person is between 30 and 60 years of age.

MEANING OF INFLAMMATION

Inflammation comes from the Latin root inflammare, which translates as "to set on fire" or "to flame within." This "setting on fire" is a literal description of the actual destructive process gluten initiates. Inflammation is your body's way of reacting to injury. When exposed to gliadin, the inflamed small intestine undergoes significant structural changes.

Inflammation is a familiar experience to everyone. For example, the reaction of the sinuses during a bad cold or flu is an inflammatory reaction. Other examples of inflammation are from the response to physical trauma, like pain from a low back injury or from hitting your thumb with a hammer. In all these situations the inflammatory response is activated. This response is the body's attempt to repair tissue damage and prevent infections by quickly bringing our own internal 911-response team to the injury site. This physiological protection includes the immediate activation of a complex system that takes place regardless of the initial source of inflammation. The purpose of this physiological mechanism is to handle the insult, whether it is physical trauma, a viral or bacterial infection, or the gliadin molecule in those who are gliadin sensitive. In each case the body attempts to remove the harmful substance and quickly control the damage that has been caused.

With a mucotoxic reaction to gluten in the gastrointestinal tract, initially there will be heat, redness, swelling, and importantly a change or interruption in the normal function of the small intestine. On the cellular level, a series of events take place including dilation or enlargement of blood vessels with increased permeability and blood flow. This brings more blood to the site of injury to provide greater protection in the form of white blood cells and other immune system cells. There is also an exudation, or leaking of fluids from the blood vessels into tissues with an accompanying swelling. This is followed by movement of leukocytes, or white blood cells into the tissues for enhanced immune protection. Additionally, there is also fibrin formation. Fibrin is a thin white filament structure that aids in the physical repair process. We are all familiar with fibrin in its role in helping blood clot this being a critical part of wound healing. In this case fibrin helps plug up any areas in the intestinal wall that require structural support.

12 to 14 hours after this series of physiological reactions, the body's response to gliadin fades provided there is no further exposure. At this point the physical regeneration and repair process can begin. If you eat gluten again, the gliadin exposure is repeated, there is no let up in the inflammatory cascade and the damage to the lining of the small intestine continues.

Assuming there is no further exposure, the blood vessels return to normal size and normal blood flow is reestablished. Then the protective white blood cells degenerate or reenter the blood circulation, and cellular disintegration or proliferation takes place in which injured cells are replaced and swelling disappears with resorption of tissue fluid and breakdown of fibrin. The "911" response team cleans up, packs up and goes back to wait for the next emergency call. Under normal conditions the inflammatory response eliminates the insult and removes injured tissue components. This process accomplishes either regeneration of the normal tissue architecture and return of physiologic function or the formation of scar tissue to replace what cannot be repaired. This whole sequence of events can take place each time a gluten sensitive individual eats gluten-containing food.

This inflammatory reaction goes largely unnoticed simply because it is not severe enough to cause immediate symptoms. If a gluten intolerant person eats gluten-containing foods for extended periods of time, over and over again, the low-grade inflammation can lead to a variety of problems. With long-term exposure, the results of this low-grade response to the gluten/gliadin molecule can be

devastating to a variety of body systems. Its effect on the digestive system is the most immediate.

I will now talk about some of the effects of gluten intolerance on the digestive system.

DIGESTIVE SYSTEM

Good health requires proper digestion and absorption. Digestion is the mechanical and chemical breakdown of the food we eat. As food is digested it needs to be absorbed. Absorption is the process of bringing the nutrients from our gastrointestinal tract into the rest of our body's tissue. Digestion is initiated when we chew food and begin to break it down with digestive enzymes. Food then enters the stomach where further breakdown occurs from the presence of stomach acid, called hydrochloric acid, and pepsin, which together begin the breakdown of proteins. From the stomach the products of digestion enter the small intestine.

The small intestine is called "small" because it is smaller in diameter than the large intestine. However, it is in fact longer and in many ways more crucial to our health than the large intestine. The lining of the small intestine consists of villi, fingerlike projections that stick out from the wall of the intestine into the lumen or center. These villi are between ½ and 1 ½ mm long, just barely visible to the human eye. On the ends of the villi are microvilli, sometimes referred to as the brush border. These two adaptations, villi and microvilli, increase the surface absorption area of the small intestine up to 1,000 fold. It's estimated that the entire absorptive area of the small intestine is roughly the size of a basketball court.

This total area for absorption can be compromised by any condition that irritates the lining of the small intestine. In gluten intolerance there is a destruction of the villi referred to as villus atrophy. This leading to poor digestive function affects many vital structures on the intestinal wall. This poor intestinal function caused by improper digestion of food is referred to as maldigestion or literally "bad digestion." Inadequate absorption of nutrients is referred to as malabsorption. In other words the inability to get the vital nutrients your body needs delivered to your cells.

EFFECT ON IMMUNE SYSTEM/HORMONAL SYSTEM

One system significantly impacted by maldigestion and malabsorption in the small intestine is the hormonal/immune system. Sub-clinical gluten intolerance creates a significant stress on the immune system and can lead to a compromised immune system. The mechanism of action occurs in several different ways. There are specialized immune cells that line the small intestine called immunocytes. These immune cells produce secretory IgA, a critical component of the thin, healthy mucous that is makes up your first line immune defense. The inflammatory response produced in individuals that are sensitive destroys a certain percentage of these cells, and this in turn can lower your immune defense thereby opening the door to intestinal infections. Therefore, parasites, bacteria, viruses, and yeast or fungal organisms can more easily infect someone who is gluten intolerant and suffering from a weakened first line immune defense. This lowered immune defense is commonly referred to as depressed secretory IgA, which also can result in many other food reactions. This is because secretory IgA also helps the body handle food antigens.

FOOD ANTIGENS

Food antigens can create significant health problems. An antigen is a marker that is recognized by our immune system as o.k. or not o.k. Antigens mark substances as foreign to the human body. The recognition of what is an o.k. antigen and what is not an o.k. antigen allows our immune system to attack and destroy harmful substances. For example, when you have a viral infection like the common cold, the viruses that infect us have antigen markers on their outer surfaces and our immune system recognizes these antigens and then makes antibodies to destroy the virus. Food is also foreign to the body and so has antigens. Typically we don't react to food antigens. However, in some people food reactions do occur because of an inappropriate response of the immune system to antigens in food. Other people may be sensitive to pollen antigens or mold antigens and so have reactions to these substances. The overall weakening or depression of our first line immune defense called SIgA, makes us more susceptible to antigens of all sorts and can make a person highly reactive to food antigens who might not otherwise have this problem. This is another

link between gastrointestinal stress and the immune system.

CORTICOSTEROIDS

Another avenue through which sub-clinical gluten intolerance affects the immune system is through the inflammatory response. Many people have heard of corticosteroid medications such as prednisone or cortisone. They are used for a wide variety of medical purposes. Corticosteroid injections are used for joint and muscle injuries to reduce pain. Corticosteroid sprays and inhalers are used by people who suffer from asthma and allergies to improve function of the airways.

CORTISOL

Our body also makes its own corticosteroids, the most abundant of which is the hormone called cortisol. When under chronic low-grade inflammation from gluten intolerance, or for that matter, any stress that inflames the digestive tract, our bodies produce increased levels of cortisol. Since cortisol is also one of the major modulators of immune function, this suppresses our immune response. As a matter of interest this immune suppressing role of corticosteroids is used in medicine in certain circumstances when immune suppression is the goal. With organ transplants and in some serious autoimmune diseases, large doses of corticosteroids are used therapeutically to suppress immune function. However, in other situations this immune suppressing role of cortisol and corticosteroid medications works against our health.

When cortisol production becomes abnormal our entire hormonal/immune system is affected. While elevated cortisol suppresses our immune response, it also causes a catabolic/breakdown state to exist in our body and symptoms of adrenal exhaustion will eventually appear such as: fatigue, depression, loss of libido, allergies, frequent illness, etc.

MUCOSAL LINING/LEAKY GUT

There are also many connections between sub-clinical gluten intolerance and other intestinal problems. To describe this connection in more detail I will review the structure and function of the small intestine.

The small intestine is constructed like a tube. The inside of the tube is the healthy mucosal lining. Mucosal tissues also line the sinus passageways, the lungs, the urogenital tract, the mouth, throat, and vaginal tract. These lining tissues act as vital barriers to defend the body from infectious organisms. The small intestine lining tissue also performs the crucial function of absorption of nutrients. Under chronic inflammatory stress this healthy mucosal tissue breaks down and a condition called increased permeability, also known as leaky gut syndrome occurs.

Leaky gut syndrome refers to the loss of integrity of this mucosal or lining tissue. Having leaky gut syndrome is like having a screen door with large holes in it that allows flies and other insects to get through. With leaky gut syndrome the lining of your intestine becomes overly permeable and molecules that were not intended to cross into your blood stream enter, or leak in. This leads to a great deal of immune stress as your body tries to handle all these uninvited guests.

LACTEALS

Gluten reactions also cause other problems. There are structures called lacteals that are located in the tips of the villi, which can be destroyed by reactions to gluten. These lacteals are responsible for helping in the absorption of fats by breaking them down into fine droplets. If this process is compromised it can result in healthy fats/oils not being absorbed that are critical to your health.

This depletes the body's source of fat-soluble nutrients leading to essential fatty acid deficiencies, low levels of vitamin A and vitamin E. Even if taken in supplements the full benefit of fat-soluble nutrients will not be realized. Deficiencies of these nutrients depletes nutrients critical for the function of every cell in the body and negatively effects blood sugar control, burning body fat, nerve cell function, steroid hormone production, anti-oxidant formation and many other processes.

It is common for people with sub-clinical gluten intolerance to develop blood sugar problems, sometimes referred to as hypoglycemia. This is due to the negative affects on digestion and absorption in sub-clinical gluten intolerant individuals

NUTRITIONAL DEFICIENCIES

The lack of normal absorption in the small intestine leads to predicable nutritional deficiencies. Calcium absorption can be poor and this nutritional deficiency coupled with abnormal corticosteroid production can lead to accelerated osteoporosis. Iron, B12 and folic acid deficiencies are also commonly observed. This can lead to fatigue, mild depression, memory loss, and greater risk for elevated homocysteine levels, a key factor in development of heart disease.

Poor digestive function leading to maldigestion and malabsorption of protein will be reflected in amino acid deficiencies. Amino acids are the building blocks of our body and are vital for normal brain function.

Our brain utilizes many different chemical messengers called neurotransmitters to communicate. They are made from amino acids found in protein containing foods. So improper digestion and/ or absorption of protein generates amino acid deficiencies, which directly effects how we think and feel. The prevalence of this problem can be seen in the numbers of people benefiting from prozac and other anti-depressant medications. These new generation of anti-depressants are called SSRIs, or selective serotonin reuptake inhibitors. These medications prevent your brain from reabsorbing the serotonin naturally produced so in effect you experience higher serotonin levels. Serotonin, a neurotransmitter, is manufactured from an amino acid. Therefore, a deficiency in amino acids can lead to a serotonin deficiency. And, conversely, restoring normal amino acid levels can help restore normal serotonin levels.

If you either (A) do not eat adequate protein, or (B) cannot digest protein well, or (C) cannot absorb the amino acids from protein, you will develop amino acid deficiencies that ultimately effect brain function and other body processes. The approach taken in natural therapies is to look for causative agents, such as maldigestion and malabsorption and treat the cause of the deficiency directly, thereby improving the outcome. In this case, addressing dietary intake of protein, the ability to digest it with sufficient stomach acid and digestive enzymes and the ability to absorb is critical to optimal health. In certain people who have food sensitivities, this one factor can prevent recovery from chronic fatigue, recurrent infections and a cycle of chronic illness.

Depending on the extent of the problem, a person may need to use extensive nutritional supplementation to restore normal levels of vitamins, minerals, amino acids and essential fatty acids. These natural therapies can be used with great success providing the appropriate foods are being eaten and normal gastrointestinal function has been restored.

LACTOSE/SUCROSE INTOLERANCE

Lactose intolerance is defined as the inability to digest the carbohydrate portion of milk products. The carbohydrate portion of milk is referred to as lactose or milk sugar. Lactose intolerance frequency accompanies gluten intolerance. Lactase, a specialized enzyme that aids digestion of lactose in milk products is usually lacking in people with sub-clinical gluten intolerance. Lactase breaks down lactose or milk sugar in the same way sucrase enzymes breaks down sugar or sucrose. Damage to the architecture of the intestinal wall and the subsequent decrease in enzymes for lactose and sucrose digestion leads to problems in digesting dairy products such as cheese, ice cream, and all types of milk products as well as sugar containing foods.

This enzyme deficiency is why people with sub-clinical gluten intolerance need to avoid cow's milk products. As the villi on the intestinal lining heal from a gluten free diet some individuals will be able to tolerate dairy products again in nine months to a year. In other people, there will be a more or less permanent sensitivity to dairy products.

However, in the initial 6 to 9 months of eliminating gluten it is absolutely required to avoid all lactose containing milk dairy products because they will inflame the intestine lining just like gliadin does and prevent healing. This includes the complete elimination of cow's milk products such as cheese, yogurt, cottage cheese, and milk. Goat's milk yogurt and goat or sheep's milk cheeses such as feta cheese and others are usually acceptable alternatives. In this instance, eggs are not considered as dairy products.

LACTOSE HOME TEST

Some people, even in the absence of gluten intolerance are lactose intolerant and simply

do not produce lactase enzymes and so cannot digest dairy products containing lactose. Other people may be allergic to the proteins of milk and not be lactose intolerant. Many people will be milk protein allergic and lactose intolerant at the same time.

There is a simple home challenge for lactose intolerance and while this test may not reveal every case of lactose intolerance it will help to identify many people who are. You may be allergic to the proteins of milk, even though, you are not lactose intolerant.

HOME TEST: Upon awakening drink a large glass (8-12 oz.) of whole milk on a completely empty stomach. Do not eat or drink anything else for 3 to 4 hours. If you experience bloating, gas, diarrhea, abdominal discomfort, mucous in the throat or abnormal bowel habits, you are likely lactose intolerant. In some cases the symptoms may not appear immediately, but will be noticed within 24 hours. If you experience no reaction whatsoever, you probably are not lactose intolerant.

There is a home test for sucrose intolerance also. First thing in the morning, add two teaspoons of pure sugar to a large glass of water. Stir well and drink. Do not eat or drink anything for three to four hours and check for any abdominal discomfort, bloating, gas or other digestive symptoms. If present, suspect sucrose intolerance.

MULTIPLE DELAYED FOOD ALLERGIES

Sub-clinical gluten intolerance often leads to the development of multiple delayed food allergies. Leaky gut syndrome and the accompanying premature leaking of food antigens into the bloodstream cause this. In time this overexposure to food antigens causes the immune system to react, and foods that would otherwise be tolerated can become allergenic. Although the problem with food allergies is generated by the damage from gluten, removal of gluten and milk/dairy from the diet is not always sufficient to remedy this problem. Depending on your circumstances, your doctor may recommend a 4 to 5 day food rotation diet. Many books are available from your local bookstores on food rotation diets.

There are different types of food allergies: some are immediate and some are delayed. Immediate food allergies are usually easy to recognize – for example, you eat a strawberry and get a rash. These don't usually require testing to determine. However, delayed food allergies are hard to identify because the reaction may not appear for hours or days after eating the offending food. For example, eating an allergic food on a Monday night could generate a migraine headache or cause fatigue on Tuesday or Wednesday. Due to this difficulty in identification of delayed food allergies one of two strategies should be followed. The first choice is to follow a four to five day rotation diet. By doing this, even though the exact foods to which you are allergic have not been identified, you will be rotating all your foods, so that any delayed allergic responses will be significantly reduced. This reduces the stress on your hormonal/immune system.

The second option is to pursue additional testing for delayed food allergies. Multiple pathway food allergy testing is designed for this purpose. This testing is done from a blood sample and identifies exactly which foods you are reacting to. You will then know what foods to avoid and what foods are safe.

It is important to employ one of these options since eating foods that you are allergic to every day can interfere with healing of the intestinal tract.

ALLERGY vs. INTOLERANCE

There is a great deal of confusion and misinformation about food allergies and gluten. Gluten intolerance is not a food allergy. It is an inherited condition that leads to a mucotoxic, or inflammatory response due to the reaction to the gliadin molecule in gliadin sensitive individuals. Sub-clinical gluten intolerance has a genetic basis, meaning it passes from generation to generation. Gluten intolerance is found most frequently in those with Irish, English, Scottish, Scandinavian, and other Northern European and Eastern European heritages. The latest research study published in the British Medical Journal in November of 1998 found previously unheard numbers of people suffering from celiac disease, the medical condition related to gluten intolerance. They found approximately one in 150 people with this condition. It is suspected the levels of sub-clinical gluten intolerance are much higher. Sub-clinical gluten intolerance and celiac occur less frequently in non-European populations.

It is important to note that many people who are gluten intolerant do not test positive on food allergy testing for wheat, rye, barley, and other gluten-containing grains. Do not be misled by the fact that you do not test positive to these gluten-containing foods. You still must avoid the offending gluten foods if you are gluten intolerant. Many people live for thirty or forty years with sub-clinical gluten intolerance and do not experience obvious symptoms. Some people who are constitutionally strong and have good adrenal function and eat moderate amounts of gluten containing foods may never experience obvious symptoms. With or without obvious symptoms, intestinal damage is still taking place.

FOOD ALLERGIES/FOOD CRAVINGS

Along with food allergies come food cravings, and it has frequently been observed that people crave that which they are allergic to. There have been many theories postulated as to why this is the case; at this point they are all speculative, as there is no definitive scientific proof of any one theory. **Please take note, if you crave certain foods all the time there is a high probability that you are allergic to them.**

ALCOHOL/GLUTEN

A special note about alcohol and gluten: Hard alcohol and beer are made from grains that contain gliadin and are to be strictly avoided. Wines on the other hand, are made from grapes and therefore do not contain gluten/gliadin. However, gluten/gliadin is ingested along with any alcohol; the gliadin is immediately put into solution and can amplify the inflammatory response up to 100 fold. Therefore, if you are gluten intolerant you must be 100% sure your meal is gluten free if you are to have any form of alcohol with your meal.

PARASITES

The structural changes to the environment of the small intestine from gluten intolerance create the perfect habitat for development of pathogenic infections. Inflammation in the small intestine causes a structure called the crypts of Liberkuhn to deepen. The elongating of these crypts, referred to as crypt hyperplasia and deepening of the crypts, makes for a deep pocket where a pathogen such as a parasite can survive by evading the usual immune surveillance that occurs in the lining tissue. Inflammation also slowly destroys the immune cells that help protect this area and these two factors taken together create a situation where parasite infections can take hold and become chronic. Parasites deeply embedded in the intestinal lining can even be resistant to powerful antibiotic treatments.

Because of this, people with gluten intolerance need to rule out the possibility that they are harboring a chronic parasitic infection. Eliminating gluten from their diet can be the first step in getting these chronic infections cleared.

CANDIDA

There is a relationship between Candida, an opportunistic organism in the gastrointestinal tract, and food intolerances. Inflammation caused by sub-clinical gluten intolerance and/or lactose intolerance weakens the immune response in the intestinal lining. This weakened mucosal immune defense can open the door for Candida to overpopulate and become invasive Candida (invasive means to invade and attach itself to the healthy mucous lining of the intestines).

NUTRITIONAL DEFICIENCIES

Gluten intolerance causes multiple nutritional deficiencies, including inability to absorb fats, proteins, and carbohydrates. Malabsorption of fats leads to deficiencies in the fat-soluble vitamins such as vitamin A and E and K and importantly, the essential fatty acids from which we manufacture all our reproductive hormones and adrenal hormones including estrogen, testosterone, progesterone, cortisol and DHEA. Other nutritional deficiencies that appear early in the disease process include lack of calcium, folic acid, iron and vitamin B12. Lack of reproductive hormones leads to disruption of the normal menstrual cycle, causing PMS or menopausal symptoms. The combination of calcium deficiency and female hormone imbalances leads to osteoporosis, or weakening of the bones. Even if women take estrogen and calcium supplements, they may not be adequately absorbed. Folic acid, B12 and iron deficiencies lead to anemia, depression and increased risk of heart disease and neurological diseases. Lack of the anti-oxidants vitamins E and A compromise our ability to fight free radicals and can further contribute to degenerative conditions such as cancer and heart disease.

The Optimal Wellness Center

Gluten Sensitivity Summary

NOT OK / NOT TOLERATED	OK / TOLERATED FOODS
Wheat	Beef, pork, lamb, any type of meat
White flour products (baked goods, cookies, pastries)	Poultry - Chicken, turkey, duck, any type of poultry
Rye	Fish and Seafood - tuna, salmon, trout, halibut, swordfish, shrimp, clams, mussels, crab any type of fish or seafood
Kamut	All vegetables
Teff	All beans except soybeans
Spelt	Corn
Soy	Rice, including wild rice, basmati rice, brown rice, white rice, rice flour
Pasteurized cow's milk products	Rice Bread
	Rice crackers
	Potato
	Millet
	Quinoa
	Amaranth
	Oats
	Buckwheat (not a wheat)
	Wheat and barley grass (has no protein)