

# Stresses Caused by too much Wheat and Sugar

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**Abstract:** The metabolism of gluten protein which produces zonulin, which in turn is a key factor in controlling permeability in the intestinal walls, is a proven scientific fact. There are many papers associating this particular phenomenon to many autoimmune diseases. These recently published works about wheat and previous ones about sugar lead to the deduction that wheat and sugar are suspected in many autoimmune diseases. As diseases go, there is a range of 'sickness' associated with each disease. The symptoms which are frequently present are chronic aches and pain; many of the symptoms have been captured by brain imaging technology. Depending on the level of sickness, people may turn up for work as normal but not be at their best. Many different persons with various autoimmune diseases, not sick enough to stay home, would evidently cause a work environment that is more stressful for everyone.

**Keywords:** Autoimmune disease, undiagnosed ADD, diabetes, productivity, aches, pains.

## INTRODUCTION

Many papers have been published lately about the association of wheat and ill health effects. There are over two hundred diseases of the autoimmune variety that have been linked to wheat [1-4]. The wheat nowadays is not the same as that 40 years ago. In the seventies, the mature wheat plant was about 3 feet tall. Today, this mature plant is about eighteen inches. Wheat contains proteins that are metabolized into substances which are harmful to human bodies. The wheat nowadays has a higher gluten content than wheat from years past, [5,6]. These modern varieties are cultivated, rather than heritage varieties, because it is necessary to survive in harsher environments and survive through water scarcity, and thus to stave off hunger and famine of people from various nations around the world. Autoimmune diseases associated with wheat consumption include Attention Deficit Disorder (ADD), celiac disease and Down syndrome. In addition, it has been shown by brain scan studies that sugar can act as an addictive drug on the brain. In other words, the same areas of the brain light up on the brain scan when a patient intakes sugar as when s/he intakes an addictive drug. Sugar does cause energy and mood variability. Too much sugar can certainly elevate the possibility of mood swings.

Sugar and wheat are ubiquitous in a common diet found in the United States of America, often referred to as the Standard American Diet (SAD). Expressed another way, wheat and sugar and their associated food products are consumed daily by the American population. Since this is the case, it is conceivable that mood swings and ADD symptoms do turn up randomly,

for example, but frequently amongst the general American population. It is the hypothesis of the current work that it is one of the root causes of unnecessary stress in the work place. For instance, the 'common purpose, values and behaviors' pamphlet circulated by a large international university in the US in December 2014, indicated that some behaviors that needed improving were 'responsibility', 'compassion' and 'team work' [7]. It is the perspective of the current work that these three behaviors would be sabotaged if one's ability to focus is compromised or if one's mood is swinging from high to low from one moment to the next, and back to high again with the next sugary snack. The aches and pains associated with the over two hundred plus autoimmune diseases related to wheat will not help in the achieving of good, self-aware behavior, which includes responsibility, compassion and team work. The unnecessary stress in the workplace that is a consequence, especially where services to humans are an integral part of the business, probably results in a loss of productivity and effectiveness which translates to a loss in the bottom line. The motivation then, is to reduce this workplace stress by reducing one of the 'controllable' suspects, the nutritional suspect. The quotation marks are used on 'controllable' because it is more an optimistic view, rather than a realistic one since wheat (gluten) and sugar are so pervasive in the SAD.

Sugar has been implicated in Type 1 Diabetes. It is common knowledge that too much sugar is not good for health, and leads to obesity. Obesity is a risk factor for Type 2 Diabetes, for instance.

## WHEAT AND SUGAR

The World Health Organization is urging people to only intake sugars up to 5% of their total daily calories

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[8]. For example, if a person consumes 2500 calories daily on average, then one should eat less than 125 calories of sugar daily, equivalent to 31 grams of sugar a day. This is equivalent to 8 teaspoons of sugar daily.

From records of the United States Department of Agriculture, the sugar intake in the country increased to 39%. The statistically average American consumes approximately 3 lbs. (1361 g) of sugar each week [8]. This is the same as 194.4 g of sugar a day or about 6.3 times the recommendation. Clearly, this level of sugar consumption needs to come down.

The people in the USA do not consume the most wheat in the world. The people of Morocco rank number one, consuming about 4 times the amount of wheat as Americans [9].

US consumption of wheat products began dropping in 2000, altering the 30-year upward trend [10]. Wheat consumption dropped from about 146.3 pounds (66.5 kg) per capita in 2000 to a low of 133.4 pounds (60.6 kg) in the mid-2000s, rose some, then dropped to 132.5 (60.2 kg) pounds per capita in 2011 [10].

The reason for wheat's infamy is that the processing of gluten protein in wheat produces another protein in the body which initiates over two hundred autoimmune diseases [1-4]. Among the ranks are ADD [11,12], celiac disease, Down syndrome and diabetes. Such diseases are specifically referenced in the next section on wheat and autoimmune diseases. These chronic autoimmune diseases are often associated with aches, and many times bad enough to be painful. It is intuitive that pain, if not abated, but simply tolerated, will not help a person in maintaining a good mood nor encourage good, self-aware behavior. Aches and pain usually causes negativity (or at least a mood that is neither good nor neutral) in the sufferer (except in very rare cases of utter control by the sufferer), and also to the people who come in contact or communicate with said sufferer. A negative reception will invoke a negative response.

Sugar has been implicated in Type 1 Diabetes. It is common knowledge that too much sugar is not good for health, and leads to obesity. Obesity is a risk factor for Type 2 Diabetes, for instance. Let us consider ADD in more detail. ADD in adults is an autoimmune disease which affects human behavior, emotions and performance mainly, rather than a disease like malaria or ebola, where external symptoms are well known and obvious. Hence, ADD goes mostly undetected in

adulthood. The relatively new concept proffered in [11,12] is that ADD runs in families (who live together). Many emotional illnesses are affected by environmental factors. This concept is taken by the Principal Investigator (P.I.) to extend to the workplace. In a highly competitive environment like a major university, many creative faculty members (in certain periods of their work-lives) spend more time at work than at their homes. An emotional disease like ADD could spread in the work place to 'family' members of the workplace, both faculty and staff. Emotional illnesses spread via fear, intimidation and a strict hierarchical governance structure, as found in many institutions of higher education and corporations. The higher up the corporate ladder a person with ADD, the more influence the person would have on the mental and behavioral health of the persons under him/her. For instance, a mother who is addicted to alcohol has more influence on the mental and behavioral health of the rest of the family (husband and children), then would a young child with Down syndrome.

## WHEAT AND AUTOIMMUNE DISEASES

The adverse effects of eating wheat have been described in [2, 13, 14]. The gluten (gliadin protein in the gluten) in wheat causes greater permeability in the intestinal wall. The processing of gliadin produces zonulin, which is known to influence permeability. Zonulin has been adversely linked to many autoimmune diseases. Celiac disease, ADD, Type 1 diabetes and rheumatoid arthritis have been so linked. Type 2 diabetes is being re-classified as 'autoimmune'.

In [15], the conclusion was that women with celiac disease could stop multiple miscarriages by freeing themselves from gluten. Persons (with only purging problems) were cured from diarrhea after ridding gluten [16].

In [17], the researchers found the positive outcome of gluten-free and casein-free diets on the spectrum of autistic symptoms.

It was found that many persons with migraine also were harboring celiac disease (CD) [18]. A gluten-free diet also resulted in a big drop in migraine symptoms. Furthermore, researchers discovered that persons with CD and irritable bowel syndrome became better by giving up gluten [19].

Children who were freshly proclaimed to have problematic livers are also often celiac disease victims

[20]. Celiac disease was also often co-diagnosed with last level autoimmune liver illness [21].

In [22], it was discovered that the symptoms of Attention Deficit Hyperactivity Disorder (ADHD) show up a lot with untreated CD patients and that the elimination of gluten from their daily foods may reduce symptoms very quickly. According to Doctor Amen [11,12], ADHD or classical ADD, is only one of seven types of ADD.

In [23], it was shown that CD was a common condition for persons with Down syndrome. In [24], this high incidence of CD was also discovered among those with Grave's disease.

In [25], it was concluded that one of the accepted symptoms of CD by clinicians is the peripheral arthritis that may simulate rheumatoid arthritis. Furthermore, in [26], serum antigliadin antibodies were found in elderly persons with rheumatoid arthritis and depression. These elderly patients did not have celiac disease.

In [27], the researchers demonstrated that having adverse reactions to gluten is a clinically proven fact in multiple sclerosis.

In [28], the researchers found that persons with psoriasis demonstrate heightened sensitivity to gluten. Psoriasis is an ugly skin disease expressed as itchy scales.

In [29], individuals with more than one type of myeloma have immunoreactivity to gluten (gliadin in gluten) very much like those expressed by individuals with celiac disease.

In [30], researchers found that schizophrenic patients have a different immune response to gluten. In addition, in [31], researchers discovered that markers of CD and gluten sensitivity are more in recently-diagnosed psychosis and multi-episode schizophrenia.

## DISCUSSION AND CONCLUSION

In the foregoing section, a short review has been done and an outline presented of many of the recent papers linking wheat (gluten) consumption with autoimmune diseases. It is not a comprehensive review. There are websites dedicated to listing the ill effects of wheat [1,2]. It is well known that too much sugar does not allow one to maintain a healthy weight, nor is it healthy generally. Sugar is a known risk factor for diabetes [32]. The 'sugar rush' which follows

consumption of too much sugar at any one time, is common knowledge.

Hence, too much wheat and excessive sugar have been associated separately with autoimmune diseases. It is evident that their synergistic effects cannot be more benign. Many brain responses to autoimmune diseases are now identifiable. Technologies used include single-photon emission computerized tomography (SPECT) [11,12] magnetic resonance imaging (MRI) and functional magnetic resonance imaging (fMRI). The different degrees or levels of disease with which a person is afflicted with a particular autoimmune disease determines the frequency of the person's absence from work. If a person with autoimmune disease symptoms shows up for work during days when s/he is not feeling too bad, s/he is also not at her/his best. This situation could cause stress to the person, the co-workers and the clients. Since there are so many autoimmune diseases linked to too much wheat and sugar, and wheat and sugar are ubiquitous in the SAD, the likelihood of many people being under this type of stresses on any one working day is huge in any American workplace. Therefore, too much wheat and sugar could synergistically cause stresses in the workplace, thus reducing performance and productivity.

Returning to the earlier autoimmune disease representative of the situation with ADD cases, Daniel Amen, a well-known psychiatrist, has had over 500 medical doctors as his patients [12]. Over sixty percent of them were emergency room doctors, and there was not a single dermatologist. Certain ADD types, according to Amen, are attracted by very challenging and interesting professions like emergency room doctors and fire-fighters. Adopting an emergency room environment of 'command and control' and 'immediacy' in an everyday office work environment is a sure way of introducing unnecessary stress to the workplace. Literally, this action is introducing 'drama' to the office, using a colloquial expression. Furthermore, Amen [12] pointed out that ADD is quite a common undiagnosed condition among more senior personnel. Amen started his SPECT brain imaging in 1991 to aid his diagnosis, which led to his classification of 7 types of ADD [11].

Let us now extend the above discussion to the other two hundred plus autoimmune diseases (that have gluten and therefore wheat implicated). The obvious collective outcome would be the widespread occurrence of poor and stressful behavior in the workplace. The use of brain imaging using MRI and

fMRI to help in diagnosis will aid in filling a real need in the gaps of knowledge regarding these mildly sick people, who show symptoms but have not been diagnosed or see the need to be diagnosed.

A companion paper by the author regarding wheat and wheat products (gluten) as an important risk factor for Type 2 Diabetes Mellitus, is reference [33].

## REFERENCES

- [1] Ji S. "Wheat: 200 clinically confirmed reasons not to eat it." GreenMedInfo, Oct 7, 2012. Retrieved 1/22/15. <http://www.greenmedinfo.com/blog/200-clinically-confirmed-reasons-not-eat-wheat>.
- [2] Ji S. "The Dark Side of Wheat." GreenMedInfo. Retrieved 2/8/15. <http://www.greenmedinfo.com/page/dark-side-wheat-new-perspectives-celiac-disease-wheat-intolerance-sayer-ji>
- [3] Rivabene R, Mancini E, De Vincenzi M. "In vitro cytotoxic effect of wheat gliadin-derived peptides on the Caco-2 intestinal cell line is associated with intracellular oxidative imbalance: implications for celiac disease." *Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease*, 1999; 1453(1): 152-160. [http://dx.doi.org/10.1016/S0925-4439\(98\)00095-7](http://dx.doi.org/10.1016/S0925-4439(98)00095-7)
- [4] Heyman M, Menard S. "Pathways of gliadin transport in celiac disease." *Annals of the New York Academy of Sciences*, 2009; 1165(1): 274-278. <http://dx.doi.org/10.1111/j.1749-6632.2009.04032.x>
- [5] Wikipedia. "Genetically Modified Wheat." Retrieved 2/11/15. [http://en.wikipedia.org/wiki/Genetically\\_modified\\_wheat#CIT\\_EREFNelson2001](http://en.wikipedia.org/wiki/Genetically_modified_wheat#CIT_EREFNelson2001)
- [6] Davis William. "Wheat Belly Total Health", TV program, WLRN.org, aired 3/02/15.
- [7] University of Miami. "Common Purpose, Values, and Behaviors." Pamphlet distributed throughout the U., Coral Gables, FL, USA, Nov. 2014.
- [8] Wilson J. "WHO-proposed recommended sugar consumption comes to less than a can of soda per day", CNN, March 8, 2014. Retrieved 1/22/15. <http://www.cnn.com/2014/03/06/health/who-sugar-guidelines/>.
- [9] Bettge AD. "Wheat is not unhealthy: a rebuttal to recent claims." Retrieved 1/22/15. <http://www.thebestgrains.com/wheat-is-not-unhealthy-a-rebuttal-to-recent-claims>.
- [10] USDA. "Wheat's role in the US diet." Retrieved 1/22/15. <http://www.ers.usda.gov/topics/crops/wheat/wheats-role-in-the-us-diet.aspx>.
- [11] Amen DG. Amen Clinics, Retrieved 1/30/15. [http://www.amenclinics.com/?kmas=1&kmca=Amen-S-National&kmag=Amen-S-US&kmkw=dr+amen&kmmt=b&kmc1=c&utm\\_source=Google&utm\\_medium=CPC&utm\\_term=dr%20amen&utm\\_content={adid}&utm\\_campaign=Amen-S-National&gclid=CLau4LuJusMCFWho7AodX1YALA](http://www.amenclinics.com/?kmas=1&kmca=Amen-S-National&kmag=Amen-S-US&kmkw=dr+amen&kmmt=b&kmc1=c&utm_source=Google&utm_medium=CPC&utm_term=dr%20amen&utm_content={adid}&utm_campaign=Amen-S-National&gclid=CLau4LuJusMCFWho7AodX1YALA).
- [12] Amen DG and Amen T. "Healing ADD with Daniel Amen and Tara Amen", TV program, WPBT2.org, 3/01/15.
- [13] Fasano A, Not T, Wang W, Uzzau S, Berti I, Tommasini A, and Goldblum, SE. "Zonulin, a newly discovered modulator of intestinal permeability, and its expression in coeliac disease." *The Lancet*, 355(9214), 2000, 1518-1519. [http://dx.doi.org/10.1016/S0140-6736\(00\)02169-3](http://dx.doi.org/10.1016/S0140-6736(00)02169-3)
- [14] Drago S, El Asmar R, Di Pierro M, Grazia Clemente M, Sapone ATA, Thakar M, Fasano A. "Gliadin, zonulin and gut permeability: Effects on celiac and non-celiac intestinal mucosa and intestinal cell lines." *Scandinavian Journal of Gastroenterology*, 2006; 41(4): 408-419. <http://dx.doi.org/10.1080/00365520500235334>
- [15] Tursi A, Giorgetti G, Brandimarte G, Elisei W. "Effect of gluten-free diet on pregnancy outcome in celiac disease patients with recurrent miscarriages." *Dig Dis Sci*. 2008; 53(11): 2925-8. <http://dx.doi.org/10.1007/s10620-008-0242-x>
- [16] Cooper BT, Holmes GK, Ferguson R, Thompson RA, Allan RN, Cooke WT. "Gluten-sensitive diarrhea without evidence of celiac disease." *Gastroenterology*. 1980; 79(5 Pt 1): 801-6.
- [17] Millward C, Ferriter M, Calver S, Connell-Jones G, "Gluten- and casein-free diets for autistic spectrum disorder." *Cochrane Database Syst Rev*. 2004; (2): CD003498.
- [18] Gabrielli M, Cremonini F, Fiore G, Addolorato G, Padalino C, Candelli M, De Leo ME, Santarelli L, Giacobazzi M, Gasbarrini A, Pola P, Gasbarrini A. "Association between migraine and Celiac disease: results from a preliminary case-control and therapeutic study." *Am J Gastroenterol*. 2003; 98(3): 625-9. <http://dx.doi.org/10.1111/j.1572-0241.2003.07300.x>
- [19] Wahnschaffe U, Ullrich R, Riecken EO, Schulzke JD. "Celiac disease-like abnormalities in a subgroup of patients with irritable bowel syndrome." *Gastroenterology*. 2001; 121(6): 1329-38. <http://dx.doi.org/10.1053/gast.2001.29572>
- [20] Vajro P, Paoletta G, Maggiore G, Giordano G. "Pediatric celiac disease, cryptogenic hypertransaminasemia, and autoimmune hepatitis." *J Pediatr Gastroenterol Nutr*. 2013; 56(6): 663-70. <http://dx.doi.org/10.1097/MPG.0b013e31828dc5c5>
- [21] Rubio-Tapia A, Abdulkarim AS, Wiesner RH, Moore SB, Krause PK, Murray JA. "Celiac disease autoantibodies in severe autoimmune liver disease and the effect of liver transplantation." *Liver Int*. 2008; 28(4): 467-76. <http://dx.doi.org/10.1111/j.1478-3231.2008.01681.x>
- [22] Niederhofer H, Pittschliel K. "A preliminary investigation of ADHD symptoms in persons with celiac disease." *J Atten Disord*. 2006; 10(2): 200-4. <http://dx.doi.org/10.1177/1087054706292109>
- [23] Jansson U, Johansson C. "Down syndrome and celiac disease." *J Pediatr Gastroenterol Nutr*. 1995; 21(4): 443-5. <http://dx.doi.org/10.1097/00005176-199511000-00012>
- [24] Erem C, Deger O, Ovali E, Barlak Y. "The effects of royal jelly on autoimmunity in Graves' disease." *Endocrine* 2006; 30(2): 175-83. <http://dx.doi.org/10.1385/ENDO:30:2:175>
- [25] Ramos-Remus C, Castillo-Ortiz JD, Sandoval-Castro C, Paez-Aguz F, Sanchez-Ortiz A, Aceves-Avila FJ. "Anti-transglutaminase, antigliadin and ultra purified anti-gliadin antibodies in patients with a diagnosis of rheumatoid arthritis." *Reumatol Clin*. 2011; 7(1): 27-9. <http://dx.doi.org/10.1016/j.reuma.2010.03.006>
- [26] Ruuskanen A, Kaukinen K, Collin P, Huhtala H, Valve R, Maki M, Luostarinen L. "Positive serum antigliadin antibodies without celiac disease in the elderly population: does it matter?" *Scandinavian J Gastroenterol*. 2010; 45(10): 1197-202. <http://dx.doi.org/10.3109/00365521.2010.496491>
- [27] Shor DB, Barzilai O, Ram M, Izhaky D, Porat-Katz BS, Chapman J, Blank M, Anaya JM, Shoenfeld Y. "Gluten sensitivity in multiple sclerosis: experimental myth or clinical truth?" *Ann N. Y. Acad Sci*. 2009; 1173: 343-9. <http://dx.doi.org/10.1111/j.1749-6632.2009.04620.x>
- [28] Singh S, Sonkar GK, Usha, Singh S. "Celiac disease-associated antibodies in patients with psoriasis and correlation with HLA Cw6." *J Clin Lab Anal*. 2010; 24(4): 269-72. <http://dx.doi.org/10.1002/jcla.20398>

- [29] Konic-Ristic A, Dodig D, Krstic R, Jelic S, Stankovic I, Ninkovic A, Radic J, Besu I, Bonaci-Nikolic B, Jojic N, Djordjevic M, Popovic D, Juranic Z. "Different levels of humoral immunoreactivity to different wheat cultivars gliadin are present in patients with celiac disease and in patients with multiple myeloma." *BMC Immunol.* 2009; 10: 32. <http://dx.doi.org/10.1186/1471-2172-10-32>
- [30] Samaroo D, Dickerson F, Kasarda DD, Green PH, Briani C, Yolken RH, Alaedini A. "Novel immune response to gluten in individuals with schizophrenia." *Schizophrenia Research*, 2010; 118(1-3): 248-55. <http://dx.doi.org/10.1016/j.schres.2009.08.009>
- [31] Dickerson F, Stallings C, Origoni A, Vaughan C, Khushalani S, Leister F, Yang S, Krivogorsky B, Alaedini A, Yolken R. "Markers of gluten sensitivity and celiac disease in recent-onset psychosis and multi-episode schizophrenia." *Biol Psychiatry*, 2010; 68(1): 100-4. <http://dx.doi.org/10.1016/j.biopsych.2010.03.021>
- [32] American Diabetes Association. "Diabetes Myths." Retrieved 2/12/15. <http://www.diabetes.org/diabetes-basics/myths/#sthash.iyl1NpNL.dpuf>.
- [33] Wong KV. "A Perspective of One Important Risk Factor of Type 2 Diabetes in Hispanic and Asian Minorities." Accepted for online open access publication by the Global Journal of Immunology and Allergic Diseases, [pharmapublisher.com](http://pharmapublisher.com), 2/28/15.

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