

Celiac Disease, Gluten Sensitivity and Autoimmune dysfunction

So you have found out that you “have” celiac disease (CD) or gluten sensitivity (GS). You have learned how to eat gluten-free and are enjoying that you are feeling SO much better. Done, right? Well, almost done. You also need to be aware that CD and GS can be associated with a number of autoimmune disorders as well. Education is knowledge, and knowledge is power—best to know ahead of time, don’t you think?

First, a bit about our immune system. The immune system has been called our “sixth sense”¹ because part of its function is to distinguish between “self” (what is part of you and what isn’t) and non-self (bacteria, viruses, fungi, cancer cells). When our immune system loses that ability, autoimmune disease can be a result. There are essentially two ways that the immune system functions—the first is called the “innate” immune system and works mainly from the gut—it’s innate because we are generally born with this ability. The second way is by the immune system learning what is self and what isn’t. Lot’s of this educational process is carried out by the thymus gland and develops in the womb, after birth (one reason why breastfeeding is so important) and throughout a person’s growth and development. Also, there are two basic arms of the immune system—the humoral, or antibody-mediated response and the cellular-mediated response. All of these are involved in the development of both CD and GS.

So, when we start eating solid foods containing gluten—and have the genetic background that means we are sensitive to gluten, the immune system begins to respond, first, we think, in the gut and digestive system. But, that isn’t the only site where the immune system is activated. The immune system can sometimes get confused because, for example, gluten “looks” too much like other substances in the body—maybe to one person’s immune system, it looks like certain parts of a nerve cell and for another person’s immune system, gluten “looks” very much like parts of the thyroid gland while in others, the gluten “looks” too much like pancreatic cells. The end result may be that an individual with CD or GS may develop an autoimmune disorder because these “look-alikes” produce cross-reactivity with those immune cells and antibodies directed against gluten.² Those immune cells and antibodies then begin to react with, bind to and damage other organs. If these antibodies and immune cells react with the pancreatic cells, autoimmune insulin dependent diabetes may result.³ If, on the other hand, these antibodies and immune cells react with nerve cells, peripheral neuropathy and movement disorders may result.⁴ Or, if these antibodies and immune cells react with the thyroid, hypothyroid (low thyroid) or hyperthyroid (overactive thyroid) disorders may result.⁵ Other autoimmune disorders that may be associated with CD or GS are immune arthritis, Sjogren’s Syndrome,⁶ (the most common symptoms here are dry eyes and a dry mouth with potentially some joint pain and swelling), skin disorders such as dermatitis herpetiformis,⁷ psoriasis,⁸ vitiligo,⁹ hair loss and others, other intestinal disorders,

anemias and other glandular (endocrine) disorders.^{2,3,4,10,11,12,13,14,15} As far as endocrine glands, the adrenals and the thyroid appear to be most affected.⁵

Osteoporosis is also associated with CD and GS.^{16,17,18} It may be somewhat dependent on autoimmunity, but it seems to more closely associated with how long CD or GS was undiagnosed and how long an individual has been gluten-free, because again, going gluten-free is the best treatment and results in the improvement of bone mineral density (BMD).^{19,20,21} Read more about osteoporosis and CD/GS in another article!

I want to emphasize here that the risk for all of these associated autoimmune disorders is not greatly elevated – and can be reduced—once you go on a gluten-free diet. The key is to stick with the gluten-free diet because all else appears to arise from the gluten sensitivity. The longer you delay going gluten-free—or the more you “fall off the wagon”, well, the likelihood of “confusing” your immune system is there. Getting and staying gluten free is the best approach—and it works!

¹ Blalock, JE, Smith, EM., Conceptual development of the immune system as a sixth sense, *Brain, Behavior, and Immunity* 21 (2007) 23–33.

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⁵ Barton SH; Murray JA., Celiac disease and autoimmunity in the gut and elsewhere. *Gastroenterol Clin North Am* - 01-JUN-2008; 37(2): 411-28, vii.

⁶ <http://www.bing.com/health/article/mayo-MADS00147/Sjogren's-syndrome?q=sjogren%27s+syndrome> (accessed 10/2011)

⁷ <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002451/> (accessed 10/2011)

⁸ <http://www.ncbi.nlm.nih.gov/pubmedhealth/?term=psoriasis> (accessed 10/2011)

⁹ <http://www.ncbi.nlm.nih.gov/pubmedhealth/?term=vitiligo> (accessed 10/2011)

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¹⁵ Rashtak S; Murray JA., Celiac disease in the elderly. *Gastroenterol Clin North Am* - 01-SEP-2009; 38(3): 433-46

¹⁶ Bianchi ML; Bardella MT., Bone in celiac disease. *Osteoporos Int* - 01-DEC-2008; 19(12): 1705-16.

¹⁷ Capriles VD; Martini LA; Arêas JA., Metabolic osteopathy in celiac disease: importance of a gluten-free diet. *Nutr Rev* - 01-OCT-2009; 67(10): 599-606.

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²¹ Selby PL, Davies M, Adams JE, Mawer EB, et al. Bone loss in celiac disease is related to secondary hyperparathyroidism. *J Bone Miner Res* 1999;14:652-7.