

Gluten, Cravings, & Weight Gain

What's the connection?





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A *Simply Gluten Free* reader wrote to us with a great question not long ago about the impact a gluten-free diet has on cravings for carbohydrates and sugar. She wrote:

After 30 years of repeated sugar and carbohydrate addiction, several weeks ago – because of type 2 diabetes, being overweight, and other health problems – I switched to gluten-free foods as a last resort.

I could hardly believe what happened. Only a day or so later, I no longer had that consistent and demanding urge to keep consuming those foods. My weight has since dropped 15 pounds, I can sleep at least 6-7 hours a night, my blood glucose levels have dropped dramatically, and I have a lot more energy.

My question is: What changed biochemically that could affect my carbohydrate and sugar addiction? I have been so surprised and happy about this change with hardly any side effects, except being fatigued for a few days. My friends could hardly believe it either. Could this question be answered in a future magazine article?

To answer this question, we turn to Dr. Alexander Shikhman.



This question contains several very important topics related to gluten intolerance and celiac disease, namely how gluten controls the appetite and fat accumulation.

Our appetite or desire to eat food and the correspondent fat tissue accumulation are regulated by two opposite hormones: ghrelin and leptin.

Ghrelin – the “hunger hormone” – is a hormone produced by the specialized cells in the gastrointestinal tract. When the stomach is empty, ghrelin is produced. When the stomach is stretched, the production stops. Ghrelin acts on hypothalamic brain cells as an appetite stimulant.

Ghrelin also increases fat mass. Studies have shown that ghrelin serves as a messenger between the body’s energy stores and the brain. When a person loses weight, their ghrelin levels increase, which leads to increased food consumption and weight gain. However, when a person gains weight, ghrelin levels drop, leading to a decrease in food consumption and weight loss. In addition, ghrelin stimulates the movement of the gastrointestinal tract and contributes to diarrhea.

Clinical research demonstrated that both adults and children with celiac disease have disproportionately elevated levels of ghrelin in their blood compared to age-matched healthy hormones. Administration of a gluten-free diet results in normalization of ghrelin levels.

Leptin – the “satiety hormone” – is a hormone made by fat cells that inhibits hunger and appetite. Leptin is opposed by the actions of ghrelin. In obese people, a decreased sensitivity of brain hypothalamic cells to leptin occurs, resulting in an inability to detect satiety despite high fat/energy stores.

Blood levels of leptin are proportional to body fat mass. Although leptin reduces appetite, obese people generally exhibit a higher circulating concentration of leptin than people with normal weight due to their higher percentage of body fat. In addition, these people show resistance to leptin, similar to resistance to insulin in patients with type 2 diabetes, with the elevated levels failing to control appetite/hunger and modulate their weight. Leptin resistance is considered a primary risk factor for the development of overweight and obesity, which in turn is closely associated with such metabolic disorders as hyperlipidemia, cardiovascular disease, stroke, insulin resistance, and type 2 diabetes.

Recent research data revealed that gluten inhibits the binding of leptin to its receptor at clinically relevant concentrations and induces leptin resistance and obesity.

Therefore, disproportionally elevated levels of ghrelin in combination with gluten's inhibitory effect on the binding of leptin to its receptor, represent the key mechanisms explaining obesity and related metabolic disturbances in patients with celiac disease and non-celiac gluten intolerance (NCGS). ^{SGF}

For additional reading, please see the original scientific articles:

American Journal of Gastroenterology, November 2003, 98(11):2474-8. "Circulating ghrelin levels in celiac patients" Peracchi M, Conte D, Terrani C, Pizzinelli S, Gebbia C, Cappiello V, Spada A, Bardella MT.

Journal of Clinical Gastroenterology, March 2006, 40(3):191-4. "Serum ghrelin levels in children with celiac disease" Selimoglu MA, Altinkaynak S, Ertekin V, Akcay F.

BMC Biochemistry, January 20, 2015,16:3. "Digested wheat gluten inhibits binding between leptin and its receptor" Jönsson T, Memon AA, Sundquist K, Sundquist J, Olsson S, Nalla A, Bauer M, Linse S.

As always, consult a medical professional before beginning any new protocol.



ABOUT THE AUTHOR:

Dr. Alexander Shikhman, founder of the Institute for Specialized Medicine, is board certified in internal medicine and rheumatology. Dr. Shikhman also launched Gluten-Free Remedies™, a line of all natural supplements which help treat the complications that can arise from celiac disease. Find Dr. Shikhman at ifsmed.com and glutenfreeremedies.com

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