

Is gluten really not responsible for bloating?

**A lot of gluten-free alternatives to traditional food products have been available on the market recent years. Has gluten intolerance become fashionable? Ten percent of the world's population declare, that they experience bloating and abdominal pain after gluten-containing products consumption. Meanwhile, gastro-intestinal complaints, for which gluten has been blamed so far, can actually be caused by fructans - as the Norwegian researchers inform in the latest issue of "Gastroenterology".**

Fructans are low-molecular-weight polymers of fructose molecules. They are mainly stored in tubers, rhizomes and lower parts of stems of such plants as wheat, onion or garlic. Fructans also appear in immature fruits. Previous studies have suggested that symptoms of irritable bowel syndrome may be related with fructans consumption. That's why a group of scientists from Oslo decided to check whether fructans could also be the cause of other less serious gastro-intestinal problems.

Researchers from the University of Oslo, with the Australian scientists from the Monash University, revealed that fructan is mostly responsible for bloating, not gluten, as it was previously thought. They performed a study of the volunteers with non coeliac gluten sensitivity who declared that gluten intake results in them with negative gastro-intestinal symptoms. 59 individuals on a self-instituted gluten-free diet with the exclusion of the celiac disease took a part in the study. They were randomly assigned to the one of three groups. Each of them was placed on diets containing gluten (5.7 g), fructans (2.1 g), or placebo, concealed in muesli bars, for 7 days. At that time, participants reported what symptoms they had in relation to the diet used. Following a minimum 7-day washout period (until the symptoms induced by the previous challenge were resolved), participants crossed over into a different group, until they completed all 3 challenges (gluten, fructan, and placebo). The GSRS-IBS (gastrointestinal symptom rating scale, in irritable bowel syndrome version) was used for the standardized assessment of the severity of digestive symptoms.

Data analysis revealed that bloating is mostly associated with the exposure to fructans. Mean scores for GSRS bloating were  $11.6 \pm 3.5$  and  $9.3 \pm 3.5$  respectively, during the fructan and gluten challenges ( $p = .003$ ). Overall GSRS-IBS scores also differed significantly during fructan, gluten or placebo challenges and were the highest after the consumption of fructan dose.

Mean values were  $38.6 \pm 12.3$ ,  $33.1 \pm 13.3$ ,  $34.3 \pm 13.9$ , respectively for fructan, gluten and placebo bars ( $P = .04$ ), while the maximum GSRS score was 45.0 and indicated the biggest nuisance of gastro-intestinal symptoms. The overall GSRS-IBS score for participants consuming fructans was significantly higher than for participants consuming gluten ( $P = .049$ ). 41% of the respondents declared that they experienced the most troublesome complaints after consuming fructan bars, while only 22% of them obtained their highest overall GSRS-IBS score after gluten exposure. There were no significant differences between gluten and placebo groups.

Study results seem to have very important clinical implications. Even though gluten-free diet results in the symptoms reduction in celiac patients, it is not recommended for healthy individuals. As the American Heart Association warns, low-gluten diet may be related with the increased risk of type 2 diabetes. It also results in the insufficient dietary iron and vitamin B intake. The elimination of cereals and flours from the diet is additionally associated with deficient of fiber and carbohydrates, which is linked to increased heart attack risk.

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Sources:

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