

A low-gluten, high-fiber diet may be healthier than gluten-free

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When healthy people eat a low-gluten and fibre-rich diet compared with a high-gluten diet, they experience less intestinal discomfort including less bloating. Researchers at University of Copenhagen show that this is

due to changes of the composition and function of gut bacteria. The new study also shows a modest weight loss following low-gluten dieting. The researchers attribute the impact of diet on healthy adults more to changes in the composition of dietary fibres than gluten itself.

An increasing number of people eat a low-gluten [diet](#), even though they are not allergic to the dietary substance. This trend has sparked public debate about whether or not low-gluten diets are recommendable for people without allergies. Now, [researchers](#) from University of Copenhagen among others have looked into just that.

In an intervention study of healthy Danish adults, reported today in *Nature Communications*, an international team of scientists shows that a low-gluten but fibre-rich diet changes the community of gut bacteria and decreases gastrointestinal discomfort such as bloating and is linked to a modest weight loss. The changes in intestinal comfort and body weight relate to changes in gut bacteria composition and function.

"We demonstrate that, in comparison with a high-gluten diet, a low-gluten, fibre-rich diet induces changes in the structure and function of the complex intestinal ecosystem of bacteria, reduces hydrogen exhalation, and leads to improvements in self-reported bloating. Moreover, we observed a modest weight loss, likely due to increased body combustion triggered by the altered gut bacterial functions," explains the leading principal investigator of the trial, Professor Oluf Pedersen, Novo Nordisk Foundation Center for Basic Metabolic Research at University of Copenhagen.

Change in dietary fibre composition seems to be the cause

The researchers undertook a randomised, controlled, crossover trial

involving 60 middle-aged healthy Danish adults with two eight-week interventions comparing a low-gluten diet (2 g gluten per day) and a high-gluten diet (18 g gluten per day), separated by a washout period of at least six weeks with habitual diet (12 g gluten per day).

The two diets were balanced in number of calories and nutrients including the same amount of dietary fibres. However, the composition of fibres differed markedly between the two diets.

Based on their observations of altered food fermentation patterns of the gut bacteria, the researchers conclude that the effects of low-gluten dieting in [healthy people](#) may not be primarily due to reduced intake of gluten itself but rather to a change in [dietary fibre](#) composition by reducing fibres from wheat and rye and replacing them with fibres from vegetables, brown rice, corn, oat and quinoa.

No basis for change of diet recommendation yet

A low-gluten diet has previously been proposed to diminish gastrointestinal symptoms in patients with inflammatory bowel diseases and irritable bowel syndrome, disorders which occur in up to 20 percent of the general Western population. The present study suggests that even some healthy individuals may prefer a low-gluten diet to combat intestinal discomfort or excess body weight.

"More long-term studies are definitely needed before any public health advice can be given to the general population. We find dietary fibres—not the absence of gluten alone—to be the primary cause of the changes in intestinal discomfort and [body weight](#). We think that our study is a wake-up call to the food industry. Gluten-free may not necessarily be the healthy choice many people think it is. Most gluten-free food items available on the market today are massively deprived of dietary fibers and natural nutritional ingredients. Therefore, there is an

obvious need for availability of [fibre](#)-enriched, nutritionally high-quality, gluten-free food items that are fresh or minimally processed for consumers who prefer a low-[gluten](#) diet. Such initiatives may turn out to be key for alleviating gastro-intestinal discomfort and in addition to help facilitating weight control in the general population via modification of the gut microbiota," says senior lead investigator Professor Oluf Pedersen.

More information: Lea B. S. Hansen et al, A low-gluten diet induces changes in the intestinal microbiome of healthy Danish adults, *Nature Communications* (2018). [DOI: 10.1038/s41467-018-07019-x](https://doi.org/10.1038/s41467-018-07019-x)

Provided by University of Copenhagen

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