

# Gluten Free Diet for IBS

Subjects: **Others**

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The Gluten Free Diet is often considered as a diet therapy for Irritable Bowel Syndrome (IBS) patients, in addition to the more famous and recognized Low FODMAP Diet. Evidence on its efficacy and long-term safety is scarce, but it can still be included in therapy for selected IBS patients, on the basis of specific symptoms and dietary history.

Gluten Free Diet

Irritable Bowel Syndrome

Non Celiac Gluten Sensitivity

Diet

Therapy

IBS

GFD

FODMAP

## 1. Gluten Free Diet (GFD)

Gluten refers to a family of proteins known as prolamins (glutenin and gliadin), which are storage proteins in the starchy endosperm of many cereal grains such as wheat, barley and rye<sup>[1]</sup>. In a GFD, these cereals, and also their hybrids or derived cereals such as Kamut®, spelt and triticale, are not allowed. Oats are tolerated when not contaminated (however, it is necessary to check product by product). Alternatives to cereals containing gluten are rice, corn, potatoes and minor cereals or pseudocereals such as teff, millet, buckwheat, quinoa and amaranth<sup>[2]</sup>. The GFD therefore consists of a complete elimination from the diet of products containing wheat, barley and rye. This is not always simple because gluten contamination may be present in unsuspected products such as soy sauce, packet broth and malt by-products<sup>[3][4]</sup>. [Table 1](#) reports foods that are allowed and forbidden in a GFD.

Table 1. Gluten free diet: allowed and forbidden foods.

Allowed Foods	Forbidden Foods
Corn	Wheat
Potatoes	Barley
Rice	Rye
Millet	Malt
Buckwheat	Kamut®
Quinoa	Spelt

Allowed Foods	Forbidden Foods
Amaranth	Triticale
Teff	Bulgur
Oats, if free from contamination	Beer Malt

A GFD is the only recognized therapy for Celiac Disease (CD), which is an autoimmune condition characterized by a specific serological and histological profile and triggered by gluten ingestion in genetically predisposed individuals<sup>[5]</sup>. In recent years, GFD has been suggested as a possible therapy in Irritable Bowel Disease (IBS), or at least in a subgroup of IBS patients<sup>[6]</sup>.

## 2. GFD as a diet therapy for IBS

A GFD is often suggested to patients with IBS-like symptoms (abdominal pain, diarrhea, bloating and flatulence). Indeed, Vazquez-Roque et al. showed that in these patients gluten caused a decrease in the expression of tight junction proteins in the colonic mucosa, causing an alteration of bowel barrier functions, especially in patients with HLA DQ8/2, the same as celiac patients<sup>[7]</sup>. Listed in Table 2 the studies on GFD efficacy in IBS

**Table 2.** Studies on Gluten free Diet (GFD) in Irritable Bowel Syndrome (IBS).

	Patients	Methods	Evaluated Parameters	Results
Wahnschaffe et al. <sup>[8]</sup> 2001	IBS-D = 26	6 months GFD	Stool frequency IgA anti-gliadin IgA anti-tTG IEL count HLA DQ2	Improved stool frequency in patients with HLA DQ2.
Wahnschaffe et al. <sup>[9]</sup> 2007	IBS-D = 41	6 months GFD	Stool Frequency IBS symptoms questionnaire (Likert) HLA DQ2	Stool frequency and GI symptom score returned to normal values in 60% of IBS patients who were positive and in 12% who were negative for HLA DQ2.
Biesiekierski et al. <sup>[10]</sup> 2011	IBS = 34	6 weeks gluten or placebo containing bread with GFD	HLA DQ2/8 IBS symptoms questionnaire (VAS)	56% having HLA DQ2/8. 68% in the gluten group reported that symptoms were not adequately controlled compared with 40% on placebo.

Patients	Methods	Evaluated Parameters	Results	
Vazquez-Roque et al. [2] 2013	IBS-D = 45	4 weeks gluten containing diet or GFD	Bowel function Small bowel and colonic transit Lactulose and mannitol excretion HLA DQ2/8	The gluten containing diet increased bowel frequency in HLA DQ2/8 patients and was associated with higher intestinal permeability.
Aziz et al. [11] 2015	IBS-D = 41	6 weeks GFD	IBS-SSS HADS FIS SF-36 HLA DQ2/8	GFD reduced IBS-SSS by $\geq 50$ points in 71%. HLA DQ2/8 positive subjects had a greater reduction in depression score and increase in vitality score.
Shahbazkhani et al. [12] 2015	IBS = 72	6 weeks GFD + 6 weeks gluten powder or placebo	IBS symptoms questionnaire (VAS)	Improvement was statistically different in the gluten containing group compared with placebo group in 25% and 83% patients, respectively. [17]
Zanwar et al. [13] 2016	IBS = 60	4 weeks GFD + 4 weeks washout + 4 weeks DBPC rechallenge	IBS symptoms questionnaire (VAS)	Gluten group scored significantly higher in abdominal pain, bloating and tiredness and their symptoms worsened within 1 week of the rechallenge.
Barmeyer et al. [14] 2017	IBS = 35 D/M = 35	4 months GFD	SGA IBS-SSS IBS-QoL EQ-5D HLA DQ2/8	HLA DQ2/8 was not associated with wheat sensitivity. 34% of the patients reported considerably or completely relieved symptoms on the GFD. [20][21][22]
Paduano et al. [15] 2019	IBS = 42	4 weeks LFD + 4 weeks GFD + 4 weeks Mediterranean diet	Bristol stool scale IBS-SSS IBS-QoL IBS symptom questionnaire (VAS) SF-12	After GFD, improvement in symptoms, in particular, VAS bloating, VAS pain and IBS-SSS, with a smaller improvement in bloating compared to the low FODMAP diet, but with an adherence index of only 11%.
Pinto-Sanchez et al. [16] 2020	IBS = 50	4 weeks GFD	GI transit Birmingham IBS questionnaire Bristol Stool Scale HADS STAI-TAY	After the GFD, patients with anti-gliadin reported less diarrhea. IBS symptoms improved in 75% of the patients with anti-gliadin and in 38% without the antibodies. GI transit normalized in a higher proportion of patients with anti-gliadin.

Patients	Methods	Evaluated Parameters	Results
		PHQ-15 PGWB Anti-gliadin	Celiac
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