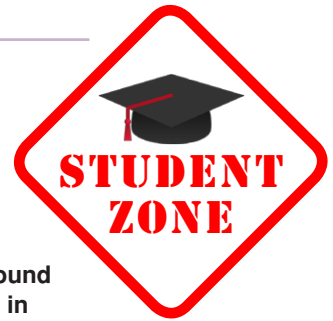


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THE LOW FODMAP DIET IN THE TREATMENT OF IRRITABLE BOWEL SYNDROME



Irritable Bowel Syndrome (IBS) is a functional disorder of the gastrointestinal tract.¹⁻¹² It affects around 11% of the global population¹⁰ and is more common in women than men.^{1,2,11} Studies show that a diet low in FODMAPs (Fermentable, Oligosaccharides, Disaccharides, Monosaccharides and Polyols) can be used to treat IBS.

Pooled data estimates that the prevalence in the UK is at 10% using the Rome I or II criteria and up to 19% using the Manning criteria. However, it differs greatly between regions and prevalence is 12% in Northern Europe compared to 21% in South America and 7% in South East Asia.¹⁰

Its causes are poorly understood and, therefore, it can be difficult to manage in practice. Clinical trials are also often difficult to draw conclusions from due to the placebo effect.¹⁻² However, it is thought that there may be increased innervation to the intestine and altered gut motility and symptoms can be triggered by psychosocial factors, but diet can also worsen the effect.⁸⁻⁹

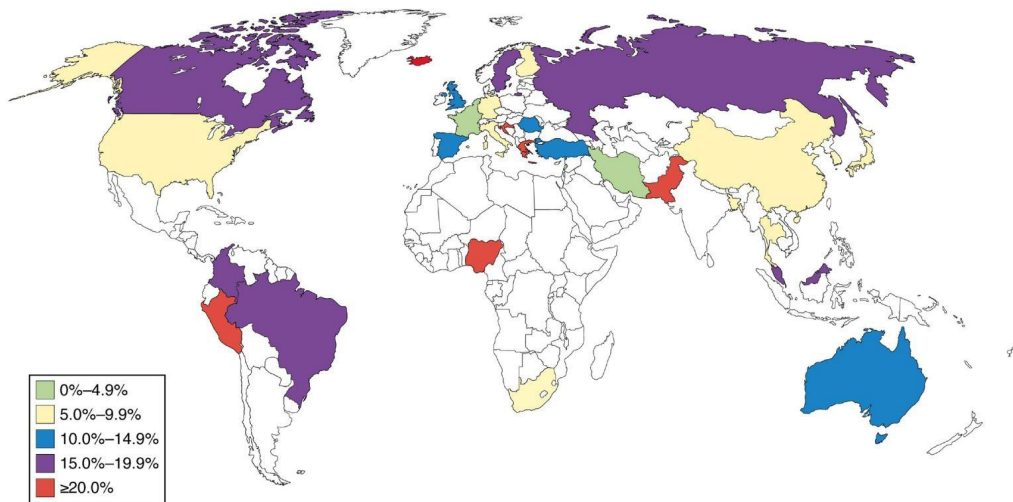
IBS can reduce quality of life dramatically (QOL) with patients reporting symptoms such as; bloating, flatulence, burping, abdominal pain, diarrhoea and constipation (amongst others).¹⁻⁸ Patients can be subtyped into four categories: constipation-predominant, diarrhoea predominant, mixed IBS or un-subtyped.⁸ A diet low in FODMAPs has been shown to decrease these symptoms in some patients²⁻⁴ and has been shown to be more effective than traditional dietary advice for IBS patients.^{3,11} NICE guidelines currently state that this diet should be recommended if symptoms continue after following traditional dietary and lifestyle advice for IBS.¹²

FODMAPs are short-chain carbohydrates that are poorly absorbed in the small intestine. When undigested, they can enter the distal small bowel and colon where they increase the osmotic load and provide substrate for bacterial fermentation.³⁻⁴ This then causes luminal distension and elicits the effects seen in IBS, such as gas production, change in bowel motility and bacterial population alterations. A diet low in these can be used to treat IBS, with some studies showing 80% of patients seeing an improvement in their symptoms.^{3,4,5}

WHAT DOES THE DIET INVOLVE?

The diet involves global restriction of foods containing moderate to high FODMAPs (exemplified in Table 1) in the diet for a set period of time (from six to eight weeks), and then reintroducing each one at varying amounts to test a patient's tolerance.⁵ Only one food should be reintroduced each week. Patients can be tested for lactose and fructose malabsorption using hydrogen/methane breath testing, as not all sufferers will be intolerant to these.⁴ Onions and garlic are major triggers of gastrointestinal symptoms in a large proportion of those who suffer with IBS. Therefore, those following the FODMAP diet should initially omit these completely. Although it is impossible to completely avoid all FODMAPs, choosing foods low in FODMAPs is the most important aspect when following this diet.⁹

Figure 1: Prevalence of IBS according to country¹⁰



WHAT DOES THE EVIDENCE SHOW?

The majority of studies demonstrate that avoiding FODMAPs can provide significant symptomatic relief to the majority of IBS patients. However, different studies have generated varying degrees of improvement, with some studies demonstrating an improvement in over 70% of patients^{3,4,11} and others showing improvements in around 50%.³ The differences may be due to varying symptom criteria used in different studies. The sample size also differs and is sometimes too small to make generalised conclusions and, therefore, these studies lack clinical significance.

A recent prospective study of 90 IBS patients confirmed that adherence to the diet significantly decreased the symptoms of IBS in patients. 72% of participants stated that they were satisfied

with the improvement in symptoms, with 62% saying that they had reduced abdominal pain and discomfort. They found that strict adherence to the diet was paramount to ensure success. Adherent participants stated that they saw improvement in an average of 17/20 symptoms compared to just 7/20 in less adherent participants. However, this study found that burping, passage of mucus and the feeling of satiety did not improve after trialling a low FODMAP diet. The study stated that due to proposed mechanism of this diet (as described earlier), this finding was unsurprising.⁴ The cohort was small and 84% female. Also, the mean age of participants was 47, so overall the study is not generalizable, but is an indication that the diet could possibly provide some symptomatic relief to sufferers.

Table 1: FODMAPs - Examples of food ingredients and commonly consumed foods with that ingredient.⁹

FODMAP	Example ingredient	Example food
Oligosaccharides	Fructans and galacto-oligosaccharides	Pasta, couscous, bread (all wheat based products), barley and rye based products, onions and garlic
Disaccharides	Lactose	Dairy products: milk, yoghurt, cream, soft cheese
Monosaccharides	Fructose	Fruit, fruit juice, honey, table sugar
Polyols	Sorbitol, mannitol, xylitol, erythritol, lactitol, maltitol, isomalt and hydrogenated starch hydrolysates	Food additives (commonly found in confectionery)

Another study compared patients on a low FODMAP diet with those who were given standard dietary advice as recommended by NICE. They found that 76% of those on the low FODMAP diet saw an improvement in symptoms compared to 54% of those on the standard diet. 85% felt an improvement in abdominal pain or discomfort compared to 61% who were given NICE advice.¹¹ This consists of limiting fruit intake to three per day, limiting consumption of resistant starch and sugar-free foods (which tend to be high in additives) and controlling insoluble fibre intake.¹²

IS IT PRACTICAL TO ADVISE IN PRACTICE?

Studies show that patient adherence to the diet is good. Although this is difficult to measure, food diaries and interviewing can be used. One study showed that 75% of participants adhered to the diet for the full period of time. As they saw improvements in symptoms, patients deemed the adherence worthwhile.⁴

It is vital that patients only remove potential triggers from their diet. They should also receive sufficient information and advice from a registered dietitian about a healthy, balanced diet before initiation. Using breath hydrogen tests to identify lactose or fructose malabsorption can reduce restrictiveness of the diet in the absence of this.⁵ Fructose malabsorption has been shown to

be present in approximately 40% of IBS sufferers⁶ with a higher prevalence in those of Northern European ethnicity, whilst lactose intolerance exists in 15-100%⁶ with a higher prevalence in Hispanic and Black populations.⁷

It is important to recognise that diet is not the only trigger of symptoms in IBS. Stress and emotions also play a significant role in causing gastrointestinal dysfunction.⁷ Patients with this disorder tend to have higher levels of depression and anxiety. Therefore, psychotherapy may also play a role in the treatment of IBS. Pharmacological interventions are sometimes required for pain relief in many patients, this may include anti-spasmodics, laxatives (for those with constipation-dominant IBS), tricyclic antidepressants or anti-diarrheal agents (for those with diarrhoea-dominant).⁸

CONCLUSION

Research suggests that the FODMAP diet is effective in improving symptoms of IBS in some people. Adherence to the diet is generally good and can be measured using food diaries. Hydrogen or methane breath testing could be used to determine if patients are fructose or lactose intolerant to reduce the restrictiveness of the diet for those who are not. Advice and guidance from a dietitian is paramount to ensure that patients are eating a varied, balanced diet.

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