

The management of irritable bowel syndrome (IBS)



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Target audience: For healthcare professionals interested in learning about the gut-brain axis.

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Learning outcomes:

By the end of this article, you should understand:

1. The prevalence, aetiology and diagnosis of IBS
2. The role of diet in the management of IBS
3. The role of medication in the management of IBS
4. The role of psychological therapies in the management of IBS

Introduction

Irritable Bowel Syndrome (IBS) is the most common functional gastrointestinal disorder affecting 11% of the population (1). It is more common in women than men (2). IBS features include chronic altered gut motility, visceral hypersensitivity (increased pain perception) and altered communication between the gut and central nervous system (3). Common IBS symptoms include abdominal pain, diarrhoea, constipation, bloating and wind, in the absence of any gastrointestinal (GI) disease (3).

Diagnosis should involve detailed assessment and testing to exclude diseases such as colon cancer, inflammatory bowel disease, coeliac disease, bacterial or parasitic infection and other diseases which can have overlapping symptom profiles (2). Symptoms should then be formally assessed using the Rome Foundation criteria, which define IBS using the following parameters (see Table 1) (3).

Table 1: Rome IV criteria for the diagnosis of IBS (3)

Recurrent abdominal pain, on average, at least 1 day per week in the last 3 months, associated with two or more of the following criteria:
<ul style="list-style-type: none">• Related to defecation.• Associated with a change in frequency of stool.• Associated with a change in form (appearance) of stool.• Criteria fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis.

IBS can be subclassified (see Table 2) depending on stool consistency and frequency, for example, diarrhoea predominant (IBS-D), constipation predominant (IBS-C) or mixed type (IBS-M) (3).

Table 2: Subtypes of IBS (3)

Subtype	Stool type (1 & 2*)	Stool type (6 & 7*)
Constipation Predominant	More than 25%	Less than 25%
Diarrhoea Predominant	Less than 25%	More than 25%
Mixed Type	More than 25%	More than 25%
Unclassified	Meets Rome IBS criteria but bowel habits cannot be categorised as above.	

*Stool types refer to the Bristol Stool Form Scale (see Table 3) (4)

Table 3: Bristol Stool Form Scale Classifications (4)

Type	Stool type (1 & 2*)
1	Separate hard lumps, like nuts (hard to pass).
2	Sausage-shaped, but lumpy.
3	Like a sausage but with cracks on its surface.

4	Like a sausage or snake, smooth and soft.
5	Soft blobs with clear cut edges (passed easily).
6	Fluffy pieces with ragged edges, a mushy stool.
7	Watery, no solid pieces, entirely liquid.

IBS has a significant impact on quality of life and financial consequences including time taken off work and frequent medical appointments (GP visits and unnecessary gastroenterology investigations) (5).

Causes of IBS

The causes of IBS are multifactorial, complex and not fully understood (6). It has become established that IBS is a disorder of the gut-brain axis (GBA) (7), with research proposing a role of the gut microbiome (8) on dysfunctional communication between the gut and brain.

Epidemiological studies have found increased risk of IBS with many factors that impact the GBA. Current and past stress (including early life trauma) increase risk of developing IBS (9). People with IBS have higher levels of anxiety and depression than healthy controls (without IBS) (10), although the direction of causation of this relationship is not known.

Gastrointestinal infection increases the risk of IBS four-fold, and this is increased further if treated with antibiotics (11). Dysbiosis is common in people with IBS and features lower microbial diversity. This is potentially caused by stress, infection, antibiotic use and immune system involvement (12). A recent meta-analysis found that people with IBS were likely to have increased proportions of *Enterobacteriaceae*, *Lactobacillaceae* and *Bacteroides* and decreased *Faecalibacterium* and *Bifidobacterium* versus healthy controls (13). Dysbiosis may lead to altered GBA communication, pain signalling and gut motility, however, more research is required in this area to ascertain whether dysbiosis is a cause or effect of IBS, or both.

Over 50% of people with IBS relate their symptoms to food (14), and 60% restrict foods in their diet (15) to help control symptoms. People with IBS have a poorer quality diet (16), and in some, this leads to inadequate nutrient intake (16,17).

Treatment of IBS

At present, IBS cannot be cured. The aim of treatment is to manage and reduce the frequency and severity of symptoms. This requires a guided 'self-help' approach and often, if treatment is stopped, symptoms will return (2). UK guidance in this area centres on the National Institute for Health and Care Excellence (NICE) guidelines (2), as well as dietary guidelines from the British Dietetic Association (which are based on a 2016 systematic review) (18).

Diet for the management of IBS

Dietary interventions should be used in a staged approach, guided by a Registered Dietitian and tailored to the individual's symptom profile (2,18). For example, the dietary advice for IBS-D would be different to the advice for IBS-C. First line dietary advice for the control of IBS symptoms is summarised in table 4.

Table 4: Summary of NICE and British Dietetic Association (BDA) dietary recommendations for IBS symptom management (2,18)

Factor	NICE recommendations	BDA recommendations
Eating habits and meal timing	Regular meals, take time to eat. Avoid missing meals, or long gaps between eating.	Not enough evidence to make recommendations, however provide general healthy eating advice with regular meal patterns, eating slowly and not eating late at night.
Fluid	>8 cups of fluid per day, prioritising water or non-caffeinated drinks.	Not enough evidence to make a recommendation, however aiming for an intake between 1.5-3L/day, especially in constipation, to improve stool consistency seems sensible.
Caffeine	Restrict tea and coffee to a maximum of 3 cups per day.	Not enough evidence to make a recommendation, however if related to symptoms consider reducing.
Alcohol	Reduce alcohol and fizzy drinks.	Screen for binge drinking, ensure intake is within safe guidelines.
Fibre	May be helpful to limit high fibre foods especially bran based or wholegrains. Limit resistant starch. In wind and bloating, oats and linseeds up to 1tbsp per day.	Avoid supplementation or high intakes of wheat bran. In IBS-C try linseeds up to 2 tbsp per day for 3 months, which may also gradually help symptoms of pain and bloating.
Fruit/Fructose	Limit fresh fruit to 3 portions per day (e.g. 80g fresh).	-
Sweeteners	In diarrhoea avoid sorbitol.	-
Spicy food	-	Trial restriction if related to symptoms.
Fat	-	Trial restriction if related to symptoms, in line with national healthy eating guidelines.

First-line dietary advice centres around a healthy balanced diet, with regular, unrushed meals, alongside sufficient fluid intake from non-caffeinated or carbonated sources. Fibre intake should be assessed and optimised based on symptom and stool profiles, generally focusing on a good variety of fibres including wholegrains such as oats and linseeds (18).

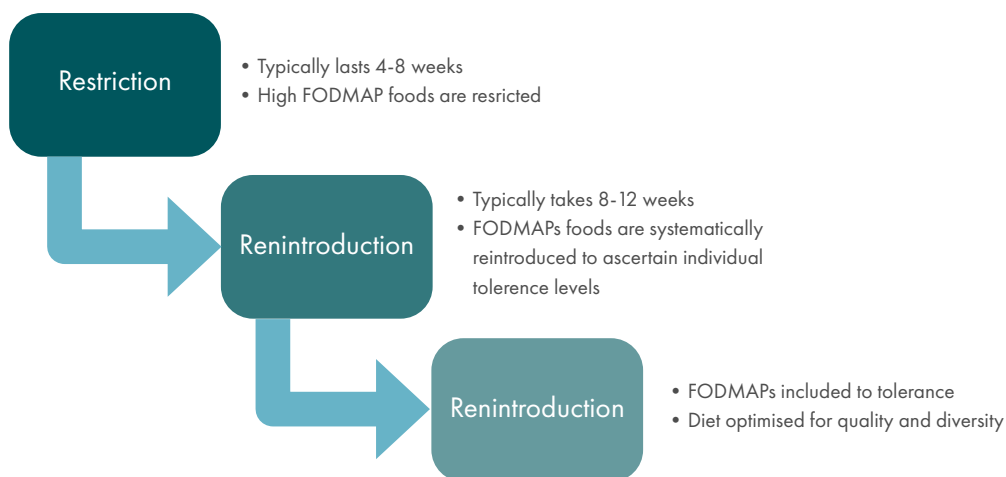
Other dietary components that impact gut motility and function such as alcohol, caffeine, spicy food, artificial sweeteners and fat are important considerations and should be assessed and modified as needed on an individual basis. A food and symptom diary can be a useful tool to support these decisions.

Possible maldigestion or malabsorption of lactose and fructose are touched upon in these guidelines. It is recommended to limit large portion sizes of fruit (2) or consider a low lactose trial if symptoms are related to dairy intake (18).

A diet low in fermentable carbohydrates, the low FODMAP diet, is recommended as a second line intervention for those with symptoms of abdominal pain, bloating and or diarrhoea (2,18). The acronym FODMAP stands for fermentable oligosaccharides (such as the fructans found in wheat, onion and garlic), disaccharides (lactose from milk products), monosaccharides (such as high fructose content fruits/sweeteners) and polyols (found naturally in some fruits and in the artificial sweeteners ending in -ol such as sorbitol). FODMAP carbohydrates are thought to have an osmotic effect in the small intestine and undergo bacterial fermentation in the large intestine, leading to GI symptoms in people with IBS.

The low FODMAP diet consists of three stages, which are detailed in figure 1.

Figure 1: Stages of the low FODMAP diet



Data from 10 randomised controlled trials (RCTs) shows that the low FODMAP diet significantly improves symptoms in 50-80% of people with IBS (19). It can lower intake of certain nutrients and lead to a lower quality diet (17) so proper reintroduction with support from a Registered Dietitian is essential. Recent focus is on mitigating the known negative impact this lower prebiotic diet has on the gut microbiome. In one study, use of a specific multi strain probiotic prevented the drop in *Bifidobacteria* associated with reducing dietary fermentable carbohydrate intake (20).

Probiotic supplementation is an interesting area of research for IBS management, with the hypothesis that correcting dysbiosis can lead to symptom improvement. A 2018 meta-analysis of 53 RCTs concluded that specific multi-strain probiotics had beneficial effects on overall IBS symptoms and abdominal pain (21), but more research in this area is required to make conclusive recommendations.

Currently, UK treatment guidelines do not advocate probiotic use (2,22) however they are considered safe (18). Patients who trial probiotics should follow the manufacturer’s guidelines (22) for four weeks whilst monitoring the effect (2).

Medication for the Management of IBS

Pharmaceutical interventions should target specific symptoms of IBS and be dependent on their severity (2). An overview of medications commonly used for the treatment of IBS symptoms are shown in table 5.

Table 5: Common Medications Used in the Management of IBS (2)

Symptom	Drug type	Mechanism	Example
Diarrhoea	Antimotility Agents	Slow GI motility/ increase transit time.	Loperamide e.g. Imodium

Constipation	Laxatives	Varies e.g. Bulk forming laxatives contain fibre to increase faecal mass and stimulate transit. Osmotic laxatives increase water content in the gut.	Bulk forming e.g. Fybogel Stimulative e.g. Senna Stool softeners e.g. Movicol Osmotic e.g. Polyethylene glycol Linaclotide if other laxatives have not helped for long term constipation
Abdominal pain	Antispasmodics	Slow postprandial gut muscle contractions.	Hyoscine e.g. Buscopan Mebeverine e.g. Colofac Peppermint oil e.g. Colpermin (23)

Laxatives should be titrated as required aiming for a type 4 stool. Lactulose is not recommended due to side effects of wind and bloating (2). Second line drug interventions include those that target the GBA such as low dose tricyclic antidepressants and serotonin reuptake inhibitors (SSRIs) (2). There have also been studies showing clinical efficacy of the antibiotic rifampin on symptoms of diarrhoea (23), however this is not currently included in UK clinical guidance.

Lifestyle Changes for the Management of IBS

NICE clinical guidelines focus on increasing activity (if current levels are low) and incorporating relaxation activities into daily living (2). A randomised controlled trial with 59 participants comparing yoga to a low FODMAP diet for 12 weeks found that both groups had equal significant symptom reduction (24). This highlights the significant impact lifestyle changes can have on symptom management.

Psychological Therapies for the Management of IBS

Psychological therapies target disordered GBA communication. NICE guidelines recommend psychological intervention for individuals who do not respond to diet, lifestyle and medication changes after 12 months (which is referred to as refractory IBS) (2).

A recent meta-analysis of psychological therapies for IBS included 41 RCTs with 4,000 participants (25). It found that the best therapies for IBS management were face-to-face CBT, minimal contact or self-administered CBT (e.g. delivered via the internet) and gut-directed hypnotherapy. These therapies also provided benefits in refractory IBS. Psychological talking therapies (face-to-face dynamic psychotherapy and multicomponent psychological therapy) and stress management also provided benefit, but the evidence was weaker. This area of research is limited by the variety of intervention methodologies used across different studies.

One RCT of 74 participants found gut-directed hypnotherapy improved IBS symptoms to the same degree as the low FODMAP diet and a combination of these therapies (26). Psychological therapies can provide benefits for those who are unable or do not want to restrict their diet. Unfortunately availability can be limited in the NHS and costs can be prohibitive (6).

Conclusion

IBS affects a significant proportion of people in the UK. It is diagnosed using the Rome IV criteria, following the exclusion of organic disease. There is good evidence that specific diet, lifestyle, pharmacological and psychological therapies can be successful at managing the symptoms of IBS. These include general healthy eating and lifestyle advice, the low FODMAP diet, symptom specific medications, CBT and gut directed hypnotherapy.

Treatment decisions should be patient-centred and must be tailored to their specific symptoms and medical history. More high-quality studies are required to fully understand the causes of IBS and the best treatment options for individual patients.

Continuing Professional Development (CPD) Questions

1) Which statement best describes IBS?

- a. A common functional gastrointestinal disorder
- b. A common inflammatory bowel disease
- c. A common pathological gastrointestinal disease

2) Which of the following are common symptoms of IBS?

- a. Abdominal pain
- b. Diarrhoea
- c. Vomiting
- d. Blood in stools
- e. Constipation
- f. Bloating
- g. Wind

3) IBS is a disorder of the gut-brain axis?

- a. True
- b. False

4) What is the main aim of IBS treatment?

- a. To manage and reduce the frequency and severity of symptoms
- b. To eliminate the frequency and severity of symptoms
- c. To treat the underlying cause and eliminate symptoms entirely

5) First-line IBS dietary advice includes:

- a. Reducing alcohol intake
- b. Modifying fibre intake
- c. Limiting fresh fruit
- d. Having regular meals
- e. All of the above

6) Patients who trial probiotics should:

- a. Follow the doctor's guidance and take until symptoms have resolved
- b. Follow the manufacturer's guidelines for four weeks whilst monitoring the effect
- c. Follow the manufacturer's guidelines and take until symptoms have resolved

7) Which of the following are clinically effective psychological therapies for the management of IBS?

- a. Face-to-face CBT
- b. Minimal contact or self-administered CBT
- c. Eye Movement Desensitization and Reprocessing Psychotherapy
- d. Gut-directed hypnotherapy
- e. Dialectical Behavioural Therapy (DBT)

[Answers the on the last page](#)

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Answers

1. a
2. a, b, e, f, g
3. a
4. a
5. e
6. b
7. a, b, d