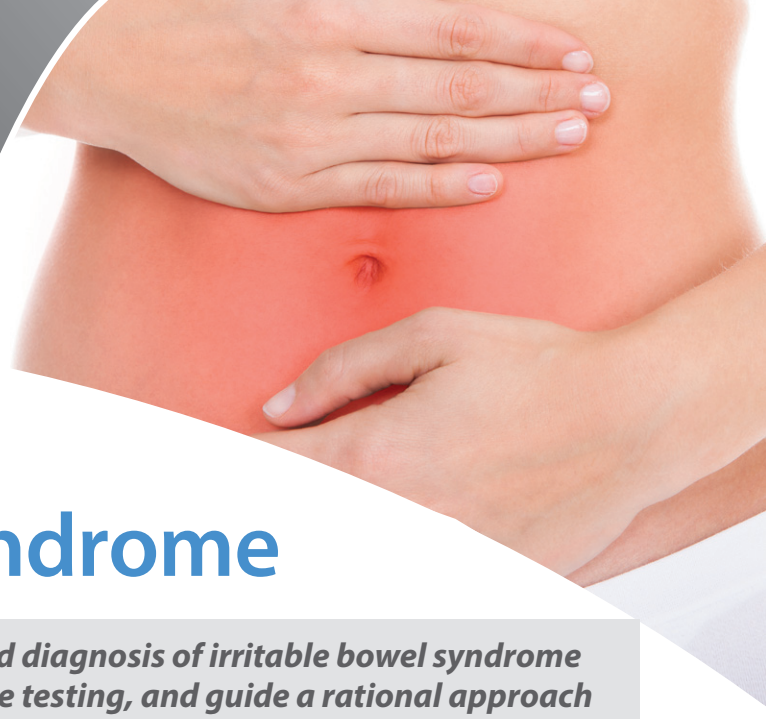
Gastrolab
GUT DIAGNOSIS



Solving the Problem of
Irritable Bowel Syndrome

Gastrolab offers comprehensive testing to aid diagnosis of irritable bowel syndrome (IBS), exclude organic causes without invasive testing, and guide a rational approach to therapy.

Functional gut disorders such as irritable bowel syndrome (IBS) are some of the most common complaints seen in primary medical practice. IBS is the most common cause for referral to a gastroenterologist. It affects over 20% of Australians, commonly young females. The symptoms include abdominal pain, cramping or discomfort, bloating, diarrhoea and/or constipation, mucus, excess flatus, and dyspepsia. In the absence of an organic cause, a biological disease marker, and a curative treatment, diagnosis and management can be challenging clinical problems.

A DIAGNOSTIC APPROACH

1. Exclusion of organic gut disease

Since many disorders present with symptoms similar to those of IBS, exclusion of organic gut diseases is an important first step in confirming a diagnosis of IBS. The following laboratory tests are recommended in patients presenting with suspected IBS (*Table 1*).

Table 1: Suggested Laboratory Testing in IBS

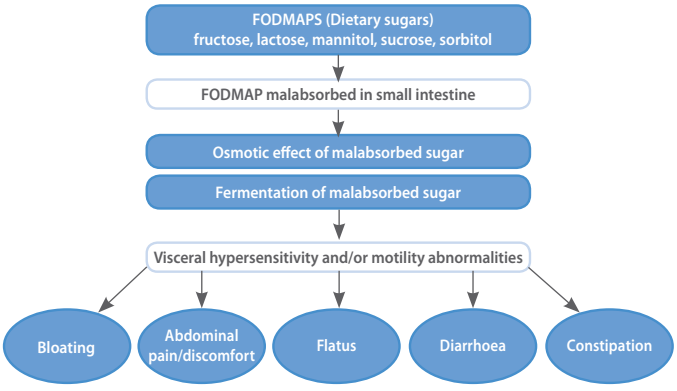
TEST	IBS PATIENT GROUP	ABNORMALITIES
FBE	All	Anaemia, leucophilia, thrombophilia
UEC	All	Electrolyte disturbances
ESR, CRP	All	Systemic inflammation
Coeliac serology	All	Elevation of IgA tissue transglutaminase Ab or **IgG deamidated gliadin peptide Ab**
Iron studies	All	Iron deficiency
Faecal calprotectin*	Diarrhoea-predominant or Mixed symptoms	Intestinal inflammation
Faecal MCS + PCR	Diarrhoea-predominant or Mixed symptoms	Detection of enteric bacteria and parasites Rapid detection of *Salmonella, Campylobacter, Shigella, Yersinia, Aeromonas, Giardia, Entamoeba histolytica, Dientamoeba, Blastocystis, Cryptosporidium*
Plain abdominal x-ray	Constipation-predominant or Mixed symptoms	Retained stool, obstruction

*Calprotectin is not Medicare rebatable and is subject to an out-of-pocket charge

2. Identification of dietary triggers

The majority of patients with IBS experience worsening of symptoms related to carbohydrate malabsorption and ingestion of foods high in dietary ***FODMAPs***[1,2] (fermentable oligo-, di- and mono-saccharides and polyols). FODMAPs are naturally occurring sugars such as lactose, fructose, sorbitol, mannitol and sucrose found in milk and dairy products, fruits and vegetables, cereals and processed foods. These dietary sugars are poorly absorbed in the gut, and fermentation of the sugar by colonic flora results in an osmotic effect and gas production. In IBS sufferers, this causes functional gut symptoms such as bloating, pain and diarrhoea (*Figure 1*). Restricted intake of FODMAPS has been shown in randomised controlled trials to relieve symptoms of IBS in up to 75% of patients.[3,4]

Figure 1: Mechanism of functional gut symptoms related to FODMAP ingestion



Gastrolab
GUT DIAGNOSIS

HYDROGEN/METHANE BREATH TESTING

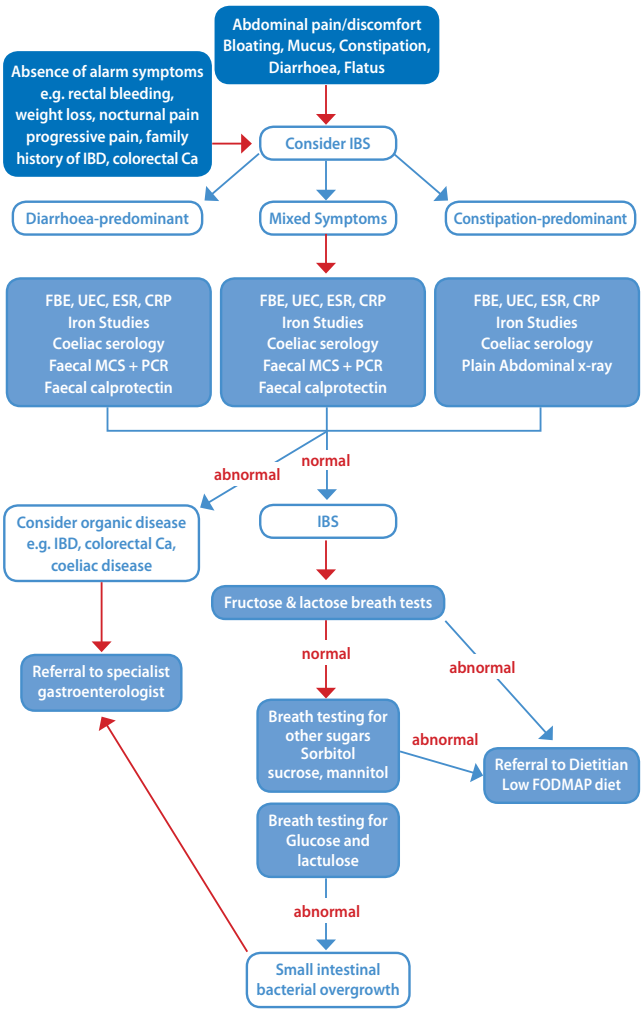
Hydrogen/methane breath tests are highly specific and sensitive tools for the diagnosis of FODMAP malabsorption. They are considered first line interventions in the diagnostic workup of IBS symptoms and are recommended prior to dietary intervention to guide dietary management in all patients[5]. Breath tests avoid unnecessary food restrictions and adverse effects on gut microflora[5].

Fructose and lactose breath testing are standard in all patients with IBS and should be performed first. Testing for malabsorption of others sugars, e.g. sucrose, sorbitol and mannitol, should be considered in patients with normal breath tests for fructose and lactose, or if symptoms fail to improve with restriction of fructose/lactose intake. Testing for both glucose and lactulose malabsorption is recommended for investigation of suspected small intestinal bacterial overgrowth (SIBO).

All patients with positive breath test results should be referred to a trained dietitian for instruction regarding a low FODMAP diet. The abnormalities on breath testing can be used to tailor specific dietary intervention, allowing the least restrictive diet possible[2]. A four week dietary trial with reduced FODMAP intake is sufficient to improve symptoms in most patients.

A suggested algorithm for work-up of IBS patients is illustrated in *Figure 2*.

Figure 2: A symptom-based diagnostic algorithm for IBS



BREATH TESTS: HOW TO ORDER

- Request "Hydrogen/methane breath test" – choose from the options below according to clinical need:

☐ **Fructose**	For fructose malabsorption, recommended in **all IBS patients**, especially those with symptoms related to fruit ingestion
☐ **Lactose**	For lactose malabsorption (lactase deficiency), recommended in **all IBS patients**, especially those with symptoms related to milk/dairy products
☐ **Sorbitol**	For suspected malabsorption of sorbitol, found in some fruits (e.g. stone fruits) and as a sweetener in sugar-free foods
☐ **Sucrose**	For suspected sucrose malabsorption (sucrase-isomaltase deficiency). Sucrose is found in processed foods, fruits and vegetables
☐ **Mannitol**	For suspected mannitol malabsorption, particularly in vegetarians. Mannitol is used as a sugar substitute and occurs naturally in some vegetables e.g. mushroom, cauliflower
☐ **Glucose & Lactulose**	Recommended for investigation of proximal and distal small intestinal bacterial overgrowth

- Each test takes up to 3 hours and must be performed on a separate day
- Breath testing will be subject to an out-of-pocket expense of $105 per sugar
- Testing for SIBO with glucose and lactulose is subject to an out-of-pocket expense of $210
- Further information is available at the following website: http://www.gastrolab.com.au

For any further enquiries regarding these tests, please contact:

Gastrolab

P: 1300 624 771

E: enquiries@gastrolab.com.au

REFERENCES

1) Barrett JS, Gibson PR. Fructose and lactose testing. Australian Family Physician 2012; 41: 293-296
2) Barrett JS et al. Comparison of the prevalence of fructose and lactose malabsorption across chronic intestinal disorders. Aliment Pharmacol Ther. 2009;30:165-74
3) Staudacher HM, Irving PM, Lomer MC, Whelan K. Mechanisms and efficacy of dietary FODMAP restriction in IBS. Nat Rev Gastroenterol Hepatol. 2014;11:256-66
4) Halmos EP et al. Diets that differ in their FODMAP content alter the colonic luminal microenvironment. Gut. 2014. dx.doi.org/10.1136/gutjnl-2014-307264
5) McKenzie YA, et al. British Dietetic Association evidence-based guidelines for the dietary management of irritable bowel syndrome in adults. J Hum Nutr Diet. 2012;25:260-74