

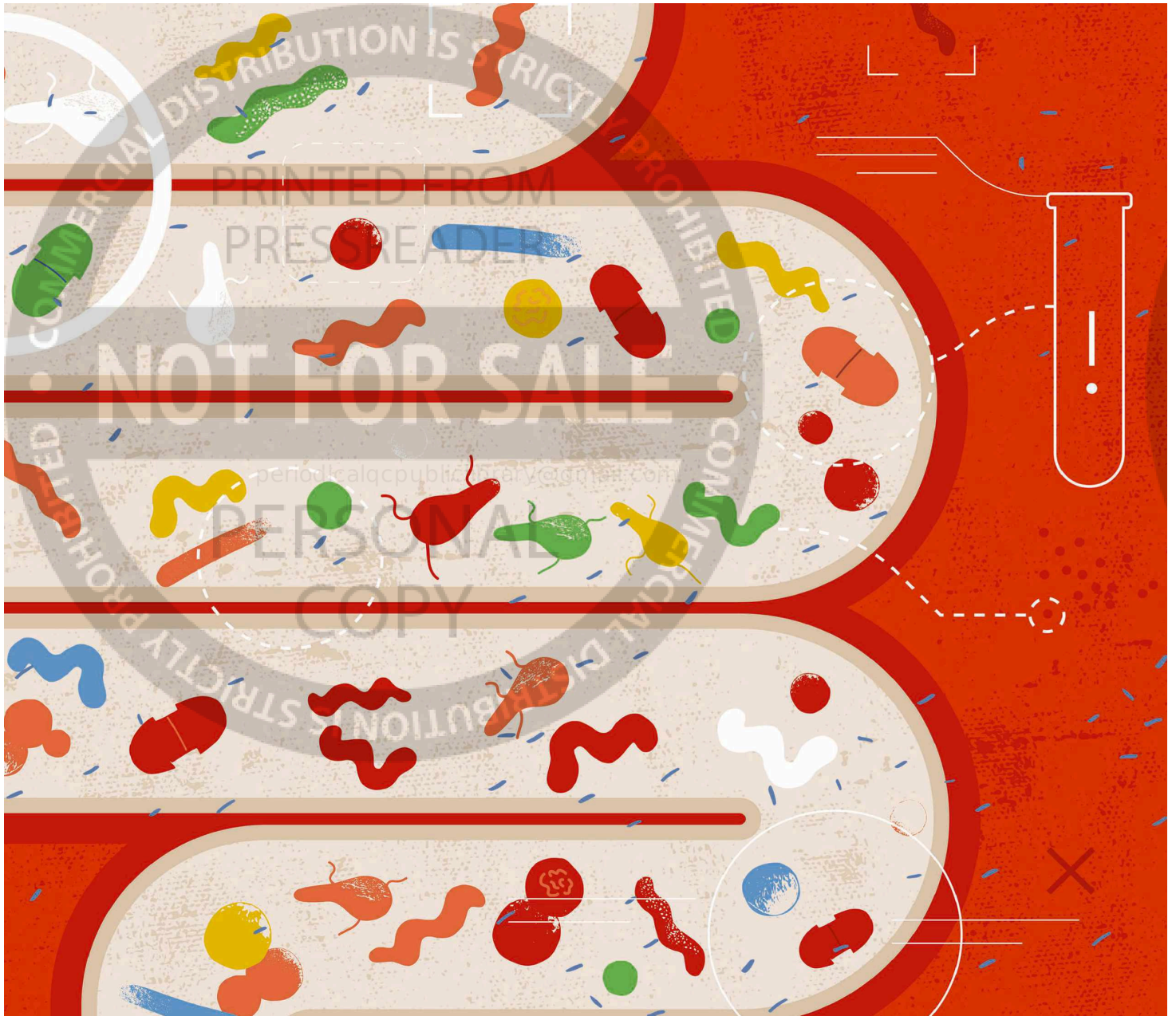
- Irritable Bowel Syndrome (IBS)



HARD TO STOMACH

Despite being a common condition, the cause of irritable bowel syndrome has proven tricky to find. Now researchers are beginning to understand what's going on in our guts... and the best ways to soothe them

by DR ANDY RIDGWAY



One in ten people suffer after eating a meal. Instead of sitting back to relax while feeling sated, nourished and full, these people associate finishing a dish with stomach cramps, bloating and problems emptying their bowels (either too quickly or too slowly).

This suffering is caused by irritable bowel syndrome (IBS) and it's estimated that around 10 per cent of the world's population (possibly more according to some estimates) experiences it to some degree.

IBS is an unpleasant experience for anyone afflicted with it, and that tends to be more women than men. Yet for such a common condition, we know frustratingly little about what causes it and how to go about treating it.

There are plenty of suggestions for possible causes. For example, some point towards a leaky gut, where

toxins might pass through the intestine walls and into your bloodstream. Others cite changes in the gut microbiome, or 'visceral hypersensitivity', where the nerves in the gut become over-sensitive and send amplified pain signals to the brain.

But pinpointing the precise mechanism that causes IBS has, so far, been impossible. And without a known cause or any clearly identifiable biomarkers, there's no reliable test to confirm a diagnosis of IBS.

"A lot of people, when they first come to me, say: 'My doctor did all these tests and then said he doesn't really know what's wrong with me. Maybe it's IBS.' I can see they're disappointed," says Prof Alexander Ford, professor of gastroenterology at the University of Leeds.

But in the last few years, scientists like Ford have made big strides in IBS research that are →

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→ providing new insights into the condition and possible treatments for it. But the key to all of this is getting to the bottom of that so-far elusive underlying mechanism.

IDENTIFYING IBS

The symptoms used to identify IBS are laid out in the Rome IV Criteria – a set of guidelines defined by the Rome Foundation, an independent, not-for-profit organisation dedicated to collecting information on disorders of the gut-brain interaction.

To have IBS, someone must have experienced stomach pain at least one day a week for the past three months. They must also display other symptoms, however, such as changes in the frequency of their bowel movements and/or the appearance of those movements. The trouble is, these are also symptoms of other gut conditions.

The lack of a single, clear explanation for IBS is down to the fact that it's likely to be several different diseases, Ford says.

“IBS is probably a collection of diseases with the same group of symptoms, which we don't understand from a scientific perspective. So, if you imagine we're dealing with 15 different conditions that we don't really understand, that's why you don't get a biomarker.”

To try to get a clearer picture of this collection of diseases, Ford and his fellow researchers identified seven distinct subgroups of IBS based on what's going on in people's guts (for example, whether they had diarrhoea or constipation) and 'mood-related symptoms'. Their research was published in the *American Journal of Gastroenterology* in 2021.

“This is a significant step forward in our understanding of what IBS is and until we really drill down and look at these different manifestations of IBS, I don't think we're going to make progress,” says Dr Eamonn Quigley, director of the Underwood Center for Digestive Health at Houston Methodist Hospital, in the US.

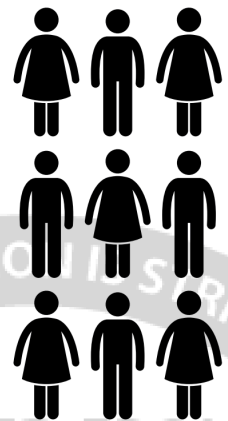
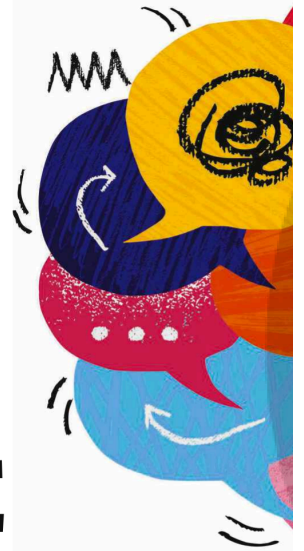
Given the fact that IBS is likely a collection of diseases, the long-term goal is to be able to provide sufferers with personalised medicine – individual treatment based on their specific form of IBS.

“PEOPLE WITH IBS ARE MORE LIKELY TO BE ANXIOUS OR DEPRESSED, AND A STRESSFUL EVENT CAN ACT AS A TRIGGER”

“Ideally we'll be able to delineate what, for the sake of argument, these 15 separate conditions are in IBS and what causes them, and then treat the underlying mechanism. But we're not anywhere near that,” says Ford.

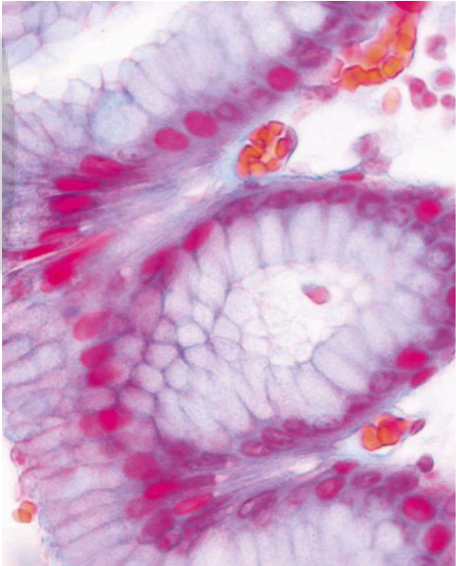
Despite this new insight, personalised treatment for IBS may still be some way off. In the meantime, researchers have found plenty of useful interventions that sufferers can implement to help them manage their symptoms (see '5 things to do if you think you have IBS', p56).

“One thing that's become clear is that there's a significant element of the IBS population who have difficulty in handling carbohydrates. One of the areas of progress is getting people to identify trigger foods for their symptoms. That alone can result in a significant improvement,” says Quigley.



Around 10 per cent of the world's population experiences IBS to some degree





RIGHT An enhanced image of the walls of the small intestine. It's thought toxins leaking through the intestine into the bloodstream may be associated with IBS

BELOW Foods that are high in carbohydrates can aggravate IBS symptoms. Doctors recommend switching to easily digestible carbohydrates, such as rice and potatoes

GUT FEELINGS

The food we eat is only part of the story, however. IBS research also highlights the role of the gut-brain axis, the reciprocal connection between what goes on in our guts and our brains. People with IBS are more likely to be anxious or depressed, and a stressful event or prolonged period of stress can act as a psychological trigger for IBS. Especially if this stressful time occurs alongside a biological trigger, such as an episode of food poisoning.

“A lot of our emotions are felt in our gut,” says Prof Rona Moss-Morris, Professor of Psychology as Applied to Medicine at King’s College London. “When we get stressed, there’s an increase in activity in our autonomic nervous system, which regulates processes not usually under conscious control, such as our breathing and heart rate – it’s getting our bodies ready for action. As part of that, sometimes it also impacts our digestive system. There’s a direct communication between the autonomic nervous system and the enteric nervous system, which manages the functions of the gastrointestinal tract, including the bowel.”

Moss-Morris was involved in the Assessing Cognitive behavioural Therapy in Irritable Bowel (ACTIB) trial, which tested the effectiveness of cognitive behavioural therapy (CBT) in treating →



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→ IBS symptoms. Some volunteers had CBT sessions with a therapist over the phone, while others had online CBT therapy, weekly interactive activities to tailor their CBT treatment, or more limited access to a therapist.

The research, published in the journal *Gut*, showed that both phone and web-based CBT reduced symptoms in refractory IBS (IBS that doesn't respond to common treatments, such as diet modification and probiotics). "Everybody knows CBT is used for anxiety and depression, but the CBT for IBS is specific to IBS. It's not the same," says Moss-Morris.

The CBT in the ACTIB trial worked by pinpointing and tackling thinking and behavioural patterns that can not only start when we have gut problems, but can also prolong the symptoms.

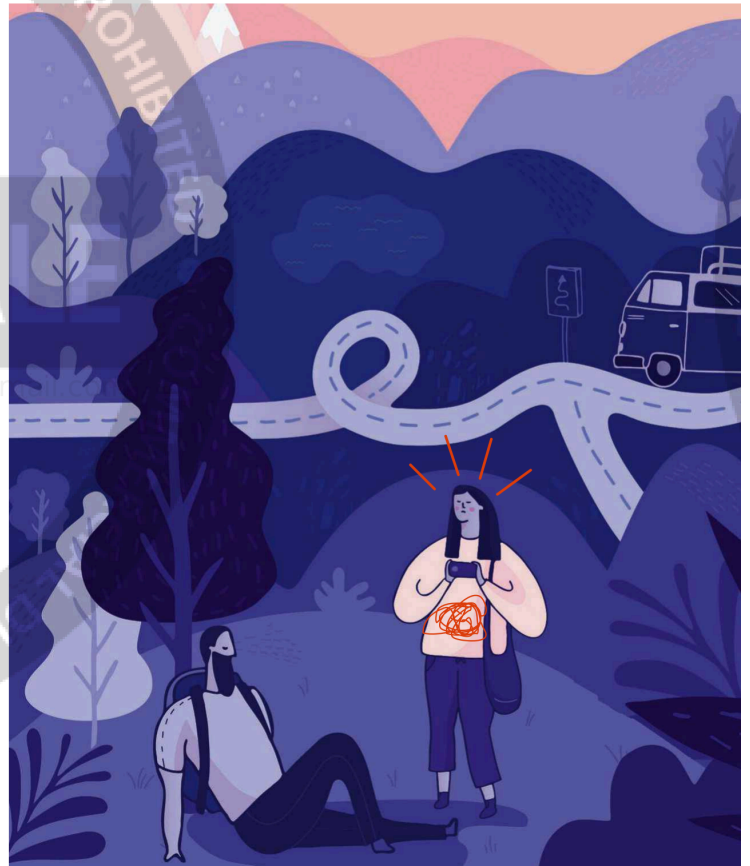
"With IBS there are a lot of things that happen intuitively when you've got really nasty gut symptoms, things that you may try and do to respond to those symptoms," says Moss-Morris. "One of them is chopping and changing your diet. But one thing we know about the bowel is that it likes consistent eating. So, if you're erratic with how you eat, that's going to make your symptoms worse."

Other counterproductive responses to IBS include so-called 'boom and bust behaviour', in which, after a flare-up of



40-60%

of IBS cases are accompanied by depression, anxiety or post-traumatic stress disorder



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THINGS TO DO IF YOU THINK YOU HAVE IBS

There's a lot of advice available for dealing with IBS, but these are the most effective, science-backed steps that you can take for yourself...



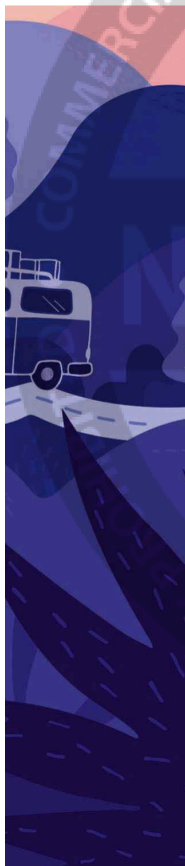
1 IDENTIFY YOUR TRIGGER FOODS

Watching out for foods that spark your IBS symptoms can have a big effect. A common approach is to avoid FODMAP foods, or those high in fermentable oligosaccharides, disaccharides, mono-saccharides and polyols, such as wheat, apples and mushrooms. A team at Monash University, Australia, has developed the Monash FODMAP diet app, as a daily guide to high and low FODMAP foods.



2 CUT THE CAFFEINE

Coffee and caffeine consumption increase your chances of developing IBS, particularly if you're a woman, a study published in *Frontiers in Nutrition* in 2021 showed. It's thought caffeine does this, at least in part, by increasing levels of stress hormones, such as cortisol and norepinephrine, that affect the gut as well as stimulating gastric acid secretion, which may irritate the intestine.



symptoms, an IBS sufferer may begin to feel better and try to work harder and socialise more, possibly in a bid to make up for any perceived lost time, causing the symptoms to return. Or they may engage in 'avoidance behaviours', where they avoid socialising or exercising out of a fear of another flare-up.

"Some of these factors are true for some people and not others," says Moss-Morris. "Part of what you're doing in CBT is creating a formulation for therapy specific to that person."

There's also evidence that gut-directed hypnotherapy works – it has proved to be effective in randomised controlled trials. Most trials of hypnotherapy to treat IBS used the Manchester protocol, in which sessions might include placing a hand on the stomach and imagining it generating warmth, or creating a mental image of the gut, such as a turbulent, fast-flowing river in the case of diarrhoea, and then imagining the river calming and moving slowly.

But just because psychological interventions such as these are effective, it doesn't mean that IBS is all in the mind. IBS is what's known as a biopsychosocial condition, in which there are several factors at play. These include biological factors, such as issues with gut function, but also psychological and social triggers, such as grief, complex relationships and other stressors.

It's this complex mix of factors that makes pinning down the precise mechanism behind IBS so difficult.

TRIGGER WARNING

Pinning down the mechanism behind IBS would transform its diagnosis and treatment. A study, published in *Nature* in 2021 could be a game changer for this, at least for one type of IBS: the type thought to be triggered by a stomach upset. →

“ONE THING WE KNOW ABOUT THE BOWEL IS THAT IT LIKES CONSISTENT EATING”



3 BECOME A FAN OF FIBRE

There's plenty of research to suggest that increasing your intake of fibre can cut IBS symptoms. Soluble fibre is the best for this, found in oats and barley, vegetables like carrots and Brussels sprouts, and beans and lentils. There can be side effects to watch out for, including pain and flatulence, but these are generally a greater issue with insoluble fibre, which is found in nuts and seeds.



4 TAKE EXERCISE

Walking, cycling, swimming and jogging have been tested in lots of studies and proven to be an effective way to reduce IBS symptoms. This is one of the bigger lifestyle changes you can make to tackle IBS and results are generally seen after 12 weeks. Similarly, yoga has been put to the test and shown to cut IBS symptoms (particularly the more intense hatha and Iyengar forms of yoga).



5 DOWNLOAD A MENTAL HEALTH APP

'Digital therapeutics' were found to be an effective treatment for IBS in a 2024 review in the journal *Clinical Gastroenterology and Hepatology*. Apps like Mahana IBS and Zemyde provide CBT-based support, whereas others, such as Nerva, use gut-directed hypnotherapy to address IBS-related pain. Treatments using the apps tend to last for about three months.

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FEATURE

IRRITABLE BOWEL SYNDROME



→ Gastroenteritis is usually caused by bacteria or a stomach bug and, in about 10 per cent of cases, is believed to be the trigger for IBS. To investigate this, a group of researchers, led by scientists at KU Leuven, a university in Belgium, infected mice with *Citrobacter rodentium* to mimic food poisoning, while at the same time feeding them with ovalbumin (a protein found in egg whites). After the infection had cleared and the mice were next fed ovalbumin, they developed IBS-like symptoms. It's thought that the combination of the infection and the ovalbumin led to the mice developing an allergy to that food.

Like us, mice normally have what's known as 'oral tolerance' to food, which means their immune systems don't attack it, even though it's a foreign substance entering their bodies. The researchers think the infection led to the mice losing oral tolerance for ovalbumin – they noticed the

Conflict and negative social interactions are strongly associated with amplifying IBS symptoms



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mice had increased levels of immunoglobulin E (IgE), a type of antibody involved in the immune response, in their guts after eating ovalbumin once the infection has cleared. It's thought the same mechanism might be at work in humans.

"It's a plausible explanation for the 10 per cent of people who develop IBS after food poisoning," says Ford, who wasn't involved in the research.

The outcome of this study led to a clinical trial of what would be a new treatment for this type of IBS. Many of the same researchers at KU Leuven carried out the clinical trial, which involved treating 200 IBS patients with ebastine, a non-drowsy antihistamine used to treat hayfever. The results, published in *Gut* in 2024, showed that the antihistamine reduced IBS symptoms after a few weeks.

Ultimately, says Quigley, there are likely to be different mechanisms underlying the causes of IBS in different groups of people. "I don't think we'll find the unifying hypothesis of IBS, but we'll continue to find explanations for subgroups of people," he says. It means that finding your own type of IBS will be key. **SF**

by DR ANDY RIDGWAY

Andy is a senior lecturer in Science Communication at the University of the West of England.