



# Post-Infectious Irritable Bowel Syndrome (PI-IBS)

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International Foundation for Gastrointestinal Disorders ([www.iffgd.org](http://www.iffgd.org))

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## What is Irritable Bowel Syndrome (IBS)?

Irritable bowel syndrome (IBS) is one of the most common medical disorders that affects approximately 10% of the global population. It is a disorder characterized by two key elements:

- 1) an abdominal component generally described as pain and/or discomfort and
- 2) a change in bowel habits which could include changes in stool texture (how the BM looks) and/or frequency (how often you have BM).

Changes in stool texture includes experiencing constipation, diarrhea, or both. Constipation is commonly defined as having three (3) or fewer bowel movements (BMs) a week, and/or difficulty passing BMs. Diarrhea is defined as loose, watery, or frequent BMs.

## What is Post-Infectious IBS (PI-IBS)?

IBS can be caused by a variety of factors. One common cause of IBS is infectious gastroenteritis, also known as food poisoning. This subtype of IBS is called post-infectious IBS (PI-IBS). In PI-IBS, even though the infection has resolved, patients continue to experience gastrointestinal symptoms. Interestingly, a change in bowel habits after an incident of food poisoning was first described among returning World War I veterans, more than 60 years before IBS was formally defined.

## What are Symptoms of Post-infectious IBS?

Symptoms of Post-infectious IBS include:

- a change in bowel habits, such as loose and watery bowel movements
- bloating
- urgency
- abdominal distention
- sensation of incomplete emptying after bowel movements

- abdominal pain and/or discomfort.

## How common is Post-Infectious IBS?

A significant proportion of IBS is due to prior episodes of food poisoning. Numerous studies in this field show that after experiencing food poisoning, there is an 11% chance of developing post-infectious IBS. It is predicted that the number of post-infectious IBS cases will keep rising in the future. Generally, food poisoning caused by bacteria leads to a higher chance of post-infectious IBS than viruses.

## What Causes Post-Infectious IBS?

Acute gastrointestinal (GI) infections are known to cause an inflammatory response in our GI tract. Such inflammatory responses can affect the movement of the gut (motility) and impact the lining of the gut. This causes changes in the gut microbiome which lead to symptoms. It can also lead to an increased number of mast cells in the gut which can independently lead to abdominal pain and discomfort.

There is lots to be learned on how infections cause IBS, but it is clear that the immune system plays a key role. For example, bacterial GI infections such as campylobacter jejuni can lead to an autoimmune phenomenon that leads to postinfectious IBS. Campylobacter jejuni is the most common cause of food poisoning in North America. These bacteria carry a specific protein (cytolethal toxin) that leads to the development of antibodies in our body. This protein looks like another protein in our body called vinculin. Sometimes, our immune system produces anti-vinculin antibodies by mistake. These antibodies attack our own vinculin proteins and impair the movement of the gut. Abnormal movement of the gut can then lead to small intestinal bacterial overgrowth (SIBO) which causes symptoms very similar to IBS.

## Are there any Treatments for Post-Infectious IBS?

Several treatments can help post infectious IBS patients. Some of these treatments are shared among all subtypes of IBS.

### Common Therapies with Proven Efficacy for Global IBS Symptoms

IBS-C	IBS-D
Plecanatide*	Eluxadoline*
Linaclotide*	Rifaximin *
Lubiprostone*	TCA's
Tegaserod*+	Alosetron*^
Tenapanor*	Peppermint Oil
SSRIs	

\*denotes FDA approval; + approved for women with IBS-C under the age of 65 without history of cardiovascular disease; \*^ approved for women with severe IBS-D when other agents have failed

### Prescription Medications Approved to treat IBS Prosecretory Agents/Secretagogues for IBS-C:

Secretagogues/Prosecretory agents are a class of drugs which increase fluid secretion and movement in the GI tract. These drugs also can improve pain, discomfort, and bloating. Currently there are four (4) FDA approved treatments in this class: lubiprostone, linaclotide, plecanatide.

**Retainagogues:** Retainagogues block the absorption of sodium from food and/or drink in the GI tract. This allows for more water to be retained in the intestines, helping speed up intestinal transit time and results in softer BMs. Like the secretagogues, it has also been shown to reduce pain and other abdominal symptoms like bloating. Tenapanor (Ibsrela®) is the first medication in the class of retainagogues. It was approved by the FDA for the treatment of IBS-C in 2019.

**The Food and Drug Administration (FDA)** is one of the U.S. government's regulatory agencies. This agency oversees a broad range of topics that pertain to food, drugs and other products used on a daily basis. The FDA works to protect public health by assuring that foods and drugs for humans and animals are safe and properly labeled. The FDA also ensures that vaccines, other biological products, and medical devices intended for human use are safe and effective.

Products approved by the FDA have been deemed safe, with benefits that are worth the possible risks. This is done after reviewing studies and tests that have been done on a product.

Learn more about Small Intestinal Bacterial Overgrowth (SIBO) with IFFGD Fact Sheet No. XXX  
*Small Intestinal Bacterial Overgrowth (SIBO)*

**Non-absorbable Antibiotics for IBS-D:** Rifaximin (Xifaxan®) is the only antibiotic approved by the FDA for treatment of IBS-D. Its exact mechanism of action is unknown. Studies have suggested that it works by modifying bacterial structure or function in the gut potentially targeting the small intestine.

**Mixed Opioid Receptor Agonist/Antagonists for IBS-D:** Eluxadoline (Viberzi®) is a drug which slows gut motility and reduces pain. It is FDA approved in adults for the treatment of overall IBS-D symptoms.

### Over-the-Counter Medications used to treat IBS Antidiarrheals for IBS with diarrhea (IBS-D)

Antidiarrheals are drugs which slow gut transit. Transit refers to the amount of time it takes for materials to move through the gut. These also decrease intestinal secretion (movement of fluid into the intestines) and increase the amount of fluid that is reabsorbed by the gastrointestinal (GI) tract. Loperamide (Imodium®) is the most commonly used OTC antidiarrheal.

### Laxatives for IBS with constipation (IBS-C)

A laxative is a drug that increases bowel function. There are many laxatives available without a prescription. Those most commonly used types include Osmotic - polyethylene glycol (PEG) 3350 (such as Miralax®), Stimulant - senna cascara, bisacodyl (such as Dulcolax®, Correctol®) and Magnesium-based - milk of magnesia

### Therapies for Predominate Pain/Discomfort Symptoms in IBS:

**Antispasmodics:** Antispasmodics are drugs which suppresses smooth muscle contractions in the GI tract. There are three major classes of antispasmodics: anticholinergics, direct smooth muscle relaxants, and peppermint oil.

**Direct Serotonin Agonists/Antagonists:** Serotonin receptors in the GI tract appear to be a good target for treating IBS symptoms. Currently two therapies are FDA approved for the treatment of IBS-C and IBS-D, tegaserod and alosetron.

## What is the Prospect for Recovery in Post-

Learn more about Treatments for Irritable Bowel Syndrome with IFFGD Fact Sheet No. 168  
*Current Pharmacologic Treatments for Adults with Irritable Bowel Syndrome*

### Treatment for Post-Infectious IBS (PI-IBS) with Overlapping Small Intestinal Bacterial Overgrowth (SIBO)

Sometimes a person with PI-IBS will also have SIBO. This can be diagnosed by:

- A carbohydrate breath testing using either lactulose or glucose. SIBO can be diagnosed if there is an excessive rise in hydrogen or hydrogen sulfide gas, over baseline, within 90 minutes.
- Small bowel aspiration - Fluid from a part of the small intestine closest to the center (either duodenum or jejunum) is removed during an upper endoscopy. The bacteria in the fluid is grown and studied. If more than 1000 colony-forming units per milliliter (CFU/mL) are seen, the patient has SIBO.

Treatment for those with PI-IBS and SIBO most often includes one or more of the following:

- Gut-specific antibiotic - Rifaximin (as mentioned above) is taken for 2-weeks. If beneficial, symptom relief should occur following the 2-week treatment. Symptoms may return after the initial treatment, and 2 successive treatments are allowed. It is minimally absorbed and generally well tolerated.
- Elemental diet - An elemental diet consists of proteins, fats, and carbohydrates that are broken down and combined with vitamins, minerals and electrolytes to form a powder. This powder is mixed with water and used as a meal replacement. Elemental diet formulations can be rapidly quickly absorbed by the small intestine, essentially depriving small bowel bacteria of sustenance, while still nourishing the individual. When utilized as a treatment for SIBO, patients typically remain on the elemental diet for 2-3 weeks.
- Glutamine supplements – a recent clinical trial showed this may help manage symptoms.

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*Small Intestinal Bacterial Overgrowth (SIBO)*

### Infectious IBS (PI-IBS)?

Unlike other subtypes of IBS, post-infectious IBS can resolve on its own. About half of patients with PI-IBS will recover with no specific treatment, although it may take several months to years.

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