



# International Foundation for Functional Gastrointestinal Disorders

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**FGIDs (252)**

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## Understanding Functional GI Disorders

Source: IFFGD Reporter's Guide to Functional Gastrointestinal Disorders  
December 2009

Functional gastrointestinal (GI) disorders are a highly prevalent group of persistent and recurring conditions that can affect any part of the GI tract. They afflict millions of people of all ages, causing discomfort ranging from inconvenience to disability. Yet they remain largely hidden and misunderstood. This article explains the challenges of the conditions and the approaches to diagnoses and treatments.

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**Functional GI disorders are among the most common chronic medical conditions – and the least understood.**

*Erin is a 23 year old graduate student. She developed painful abdominal symptoms at age 17. That began a journey of doctor visits that started with her General Practitioner, and then three Gastroenterologists. After undergoing many tests, she was initially diagnosed with IBS. But she received no effective treatment or management help. Despite that, she entered college and kept looking for answers.*

*“My symptoms persisted and were getting worse. I was eating less and having more pain. Four years later, I had lost all hope. I figured I would just get worse and worse until the end of my days. Then, in desperation, my mom helped me find a specialist and center where they truly understood my condition. The team looked at my entire profile, and asked me so many questions. Immediately, I felt that I had found the right place! I was diagnosed with Functional Abdominal Pain Syndrome (FAPS) and provided a treatment regimen that includes a combination of things. Now I can eat so many new foods – and I enjoy life again.”*

Functional gastrointestinal (GI) disorders are a highly prevalent group of persistent and recurring conditions. Yet they remain largely hidden and misunderstood. These conditions can affect any part of the GI tract, from top to bottom. They have unpredictable symptoms and sometimes disabling effects. They cause tremendous personal and societal burden – in terms both of monetary and personal costs.

Yet even with the high occurrence, cost, and burden of the functional GI disorders, most persons remain unaware of these conditions; many physicians dismiss the symptoms as being imaginary; only a handful of effective therapies exist; and only a small percentage of medical research funding is aimed at studying these conditions.

At any one time, approximately 2 out of 5 persons are affected by a functional GI disorder. Plus, the disorders often overlap with each other, and many people are affected by more than one functional GI disorder simultaneously. Of this large population, only a minority seeks medical care. Still, functional GI disorders are a leading reason for doctor visits.

What is it about the functional GI disorders that results in their being trivialized by the public and even many physicians? The answer likely lies in a lack of understanding of the conditions.

## **What Makes the Functional GI Disorders so Challenging?**

These conditions are challenging to patients and doctors for a number of reasons. People with functional GI disorders have normal diagnostic tests such as endoscopies, x-rays, and blood tests. Because these tests are normal, the diagnosis of a functional GI disorder is based on whether symptoms meet certain defined criteria. This is quite different from other well accepted conditions such as diabetes, peptic ulcers, or heart disease, which can be easily detected on tests alone.

Complicating this, the symptoms of a functional GI disorder are quite variable. Their onset is often unpredictable. Their course can vary from day to day, month to month, and year to year. These variations occur both within an individual, and also from person to person with the same diagnosis.

Unlike other conditions which may have one or two causes, functional GI disorders are influenced by multiple factors. These conditions do not fit the traditional linear biomedical model, which reduces a disease to a single visible cause, such as a bacterial infection with specific treatment.

Finally, adequate treatment for functional GI disorders is lacking. To compound this, several effective drugs have been removed from the market due to safety concerns. All of the above factors contribute to uncertainties that challenge both affected individuals and their doctors.

## **What Causes the Disorders?**

Historically the causes of functional GI disorders were quite elusive. However, over the past two decades a series of discoveries suggest several mechanisms by which functional GI disorders may develop. While between people, the specific mechanisms may vary, persons with functional GI disorders are often noted to have abnormal GI sensory perception and abnormal motility. These abnormalities may in turn relate to disordered brain-gut communication, genetic factors,

infection and altered gut bacteria, and intestinal inflammation.

**Abnormal Sensation** – Two-thirds of patients with functional GI disorders have increased sensitivity to gut stimuli. This is called “visceral hypersensitivity.” As a result, normal physiologic activities such as gut contractions may cause pain or discomfort. In other words, persons with these conditions tend to experience pain or discomfort from sensations that go unnoticed by other people.

**Abnormal Motility** – The gut uses a highly coordinated series of contractions to move food, absorb nutrients, and eliminate waste. In functional GI disorders these activities are sometimes altered. Such “dysmotility” may cause various problems ranging from swallowing difficulties to incontinence. For instance, symptoms may occur if the movement of contents is too rapid or too slow. Likewise, esophageal or intestinal muscle spasms cause pain.

#### **What Causes Abnormal Sensation or Motility?**

Ongoing research has begun to unravel the mechanisms by which abnormal sensation and motility may occur. These include the following:

**Brain-gut Interactions** – The brain and the gut are intricately connected. Consider how sadness can cause one’s stomach to feel “upset” or how performance anxiety can trigger intestinal “butterflies.” Similarly, a bout of food poisoning can tell the brain to permanently avoid the responsible food. These brain-gut interactions are mediated by a set of nerves that transmit signals from the gut to higher processing centers in the brain and, in turn, from the brain back to the gut. In patients with functional GI disorders, brain-gut interactions are disordered. Thus, these individuals may abnormally process gut sensations and consequently experience pain, nausea, and other GI symptoms.

**Genetic Factors** – Functional GI disorders often run in families. Research suggests that this may be related to both social learning as well as underlying genetic factors, such as abnormalities in serotonin transporter genes.

**Infection and Intestinal Inflammation** – In some persons with a GI infection who previously had no symptoms, continuing symptoms have been observed after the initial infection has resolved. For example, between 7% and 31% go on to develop IBS with symptoms that may last for months to even years. In

these patients symptoms may be the result of persistent, low-grade intestinal inflammation.

**Altered Bacterial Flora** – Altered gut flora may have a role. Each person has billions of bacteria scattered throughout his or her GI tract. More than 500 different intestinal bacteria have been identified and it is estimated that there are actually 10 times more bacterial cells in the body than human cells. Some of these bacteria are beneficial to our health. They help maintain normal functioning of our intestine. Others can cause infection, or inflammation. When the normal balance in the intestine between beneficial and harmful bacteria is changed, it may lead to changes in the function of the GI tract and chronic GI symptoms. Furthermore, certain studies suggest a benefit from certain probiotics (“good” bacteria) and antibiotics.

#### **What are the Symptoms?**

For the most part, variable combinations of symptoms characterize each functional GI disorder. Several are defined by one symptom, including functional abdominal pain syndrome, functional bloating, and functional heartburn. Symptoms generally come and go repeatedly over a long-term. They recur at unpredictable intervals. Symptom overlap between various functional GI disorders is common. Symptom examples include abdominal pain, nausea, constipation, diarrhea, bloating, urgency, decreased appetite, swallowing difficulties, heartburn, and incontinence.

#### **How are the Functional GI Disorders Diagnosed?**

The symptoms of functional GI disorders have been described for hundreds of years in the medical literature. Yet results generally look normal on routine tests like x-rays, CT scans, or endoscopies. This led to the creation of symptom-based criteria, which have been evolving over the past several decades. Developed by committees of experts from around the world, the “Rome Criteria,” are symptom-based diagnostic systems first published in 1992. The Rome Criteria provide a framework to consistently categorize and identify the 28 adult and 17 pediatric functional GI disorders.

#### **What are the Treatments?**

There are no cures for the functional GI disorders. Treatment focuses on management over a long-term. It varies based on the severity and symptoms, and the degree of impairment of a person’s daily life. Management is aimed at reducing symptoms and restoring a sense of control over the condition. It may include one or combinations of changes in routine, medicines, and other therapies.

All treatment should begin with an accurate diagnosis which helps assure appropriate treatment, and minimizes unnecessary risk and expense from unneeded tests. Next, the physician should validate and explain the person's very real illness, even in the absence of objective physical findings while providing reassurance that nothing has been missed. With this understanding the doctor and patient can form a partnership in which they attempt to manage symptoms over time.

*Nina is a 44 year old professional. Her symptoms began abruptly about 3 years ago. Despite receiving a prompt diagnosis and available treatments, the burden of illness persists.*

*"The number and range of my symptoms have changed over time. As some wane, others replace them. Although each is individually mild to moderate at any given time, the cumulative effect and uncertainty of these constant fluctuations are still disruptive to my professional and personal life. We don't all fit neatly into a severity level or symptom category. Our concerns do not all involve restroom locations, fear of misdiagnosis, or inability to tell others. I simply want enough control to be comfortable, to function independently and continue to earn a living without unduly burdening others."*

### **Summary**

Functional GI disorders afflict millions of people of all ages – men, women, and children. They are the most commonly presented GI illnesses seen by doctors in primary care or gastroenterology. The term "functional" is generally applied to disorders where the body's normal activities in terms of the movement of the gut, the sensitivity of the nerves of the gut, or the way in which the brain controls some of these functions is impaired.

However, no structural abnormalities are seen on commonly used diagnostic tests. The Rome diagnostic criteria categorize the functional gastrointestinal disorders and define symptom based diagnostic criteria for each category.

The social and economic costs of functional GI disorders are enormous. The disorders generate a considerable financial impact on the healthcare system.

Symptoms of these disorders can cause discomfort, ranging from inconvenience to deep personal distress. For those with severe symptoms the disorders can be debilitating, leaving them unable fully to participate in life and work. The disorders lack globally effective (treating multiple symptoms) or curative treatments.

Much remains unknown about the functional GI disorders. This may lead to confusion and misunderstanding among patients and physicians alike. Lack of understanding can lead to misdiagnosis, unnecessary procedures, and misguided treatment. It can result in added costs and unnecessary suffering. Better understanding and improved treatments – through awareness, education, and research – are truly needed.

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This article is in no way intended to replace the knowledge or diagnosis of your doctor. We advise seeing a physician whenever a health problem arises requiring an expert's care.

IFFGD is a nonprofit education and research organization. Our mission is to inform, assist, and support people affected by gastrointestinal disorders. For more information, or permission to reprint this article, write to IFFGD, 700 W. Virginia St., #201, Milwaukee, WI 53204. Call toll-free (In the U.S.): 888-964-2001 or 414-964-1799. Visit our website at: [www.iffgd.org](http://www.iffgd.org)