



Could Probiotics Help Alleviate your Functional Gastrointestinal Symptoms?

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Irritable bowel syndrome (IBS) and other functional gastrointestinal (GI) disorders are common. IBS affects 10–20% of the adult population in western countries. Despite intensive research over the past 15 years the understanding of the underlying causes for symptoms are not yet clear. Doctors and researchers continue to search for possible mechanisms that may contribute to the symptoms associated with functional bowel disorders. Recently researchers have been studying the role of normal intestinal bacteria (also called *intestinal microbiota*) in maintaining healthy and normal GI function.

Did you know?

- More than 500 different intestinal bacteria live in your GI tract. There are actually 10 times more bacterial cells in our body than human cells.
- Most of these intestinal bacteria are not yet known and cannot be identified by routine stool culture tests.
- Some of the bacteria in our GI tract are helpful in keeping the normal functioning of our intestine and are beneficial to our health. Others may cause infection, inflammation, or may just make us feel sick; these bacteria are treated with antibiotics.

What do we know about the intestinal microbiota in IBS?

The results of recent studies indicate that the bacterial communities harbored in the intestine of some patients with IBS are different than the bacterial communities in people without IBS. However, since most of the bacteria in the human gut are still unknown, the normal intestinal

microbiota and the specific alterations in patients with IBS are not yet well characterized. The reasons for differences in IBS are unknown. It is also not yet clear if these recently described differences in the intestinal microbiota are the cause for the IBS symptoms, or a secondary result of the abnormal intestinal function in these patients.

- Some patients with IBS have different compositions of intestinal microbiota than healthy people.
- The exact differences in the intestinal microbiota between patients with IBS and healthy people are not well characterized.
- It is not yet clear if the changes in the intestinal microbiota observed in some patients with IBS are actually the cause for their symptoms, or a result of the abnormal gut function associated with IBS.

Can alterations in intestinal microbiota affect functional bowel symptoms?

There is evidence that a normal bacteria composition of the intestinal microbiota play an important role in the development and normal functioning of the intestinal tract. It appears that changing the balance between “good” and “bad” bacteria in the intestine may lead to lasting effects on the function of the GI tract and chronic GI symptoms. For example, it is now well recognized that bacterial or viral infection in the GI tract (acute gastroenteritis) can sometimes lead to chronic IBS symptoms that may continue long after a person recovers from the initial sickness. This condition, called *post-infectious IBS*, is often associated with symptoms of abdominal

pain/discomfort, diarrhea and abdominal bloating, gas, and distention.

Another example is a condition called *small-intestinal bacterial overgrowth*. That means that there are more bacteria than normal in the small intestines. The increase in bacteria in the small intestines can lead to increased fermentation of undigested food (mostly sugars). This may result in excessive gas production and changes in the motility (movement) of the GI tract. These factors may contribute to symptoms of abdominal bloating, distention, gas, and diarrhea. Doctors can determine if there is small-intestinal bacterial overgrowth by performing a test called a Hydrogen Breath Test. Studies have shown that antibiotic treatment decreasing the amount of bacteria in the small intestines can help patients with this condition.

- Sometimes IBS symptoms may be triggered by an acute bacterial or viral infection and the GI symptoms can persist even after the initial infection has been resolved.
- Abnormal fermentation of undigested food by intestinal bacteria can lead to abnormal intestinal function and functional GI symptoms.

How do I know if I have altered intestinal microbiota?

Currently there are no tests that your doctor can order to determine if you have an altered composition of intestinal microbiota. Researchers are using advanced molecular biology techniques to learn more about the different species of bacteria in the intestine both in healthy people and in patients with various GI symptoms.

We know that changes in the intestinal microbiota relate to the change in balance between the “good/beneficial” and the “bad/harmful” bacteria in the intestine. Several factors can affect the intestinal microbiota and lead to disruption of this balance. These include:

- diet and nutritional factors (e.g., fiber, sugars),
- the intestinal function (e.g., motility, secretion),
- certain abnormal intestinal conditions (e.g., small bowel bacterial overgrowth, infection, and inflammation), and
- medication (antibiotics, drugs that affect the intestinal motility).

All of these factors are currently being investigated by researchers to determine the effects of these factors on the composition of intestinal microbiota in patients with GI symptoms versus those without functional GI symptoms.

- Since the composition of the intestinal microbiota in health and disease conditions is not yet known doctors cannot identify alterations in your intestinal microbiota by ordering the currently clinically available laboratory tests.

How can altered intestinal microbiota be treated?

Some doctors and scientists believe that the normal function of the intestinal tract is dependent upon the balance of “good” and “bad” bacteria in your intestines. Presumably, the “good” bacteria can be enhanced through treatment with probiotics or prebiotics (see below). The “bad” bacteria may be decreased by treatment with antibiotics. Recent research supports the importance of the balance between “good” and “bad” bacteria. However, there is less evidence that determines specifically which intervention (antibiotics, probiotics, or prebiotics) should be used for treatment of different illness conditions, and how long each treatment course should last.

- Certain GI illnesses and symptoms may relate to disruption of the normal balance between “good” and “bad” bacteria in your intestine.
- Doctors and scientists attempt to correct the imbalance in the intestinal microbiota by using antibiotics, prebiotics, or probiotics in patients with certain GI illnesses. However, it is unclear yet which antibiotic, prebiotic, or probiotic should be used for each illness condition.

What are prebiotics and probiotics?

Probiotics are live microorganisms which when administered in adequate amount confer a health benefit on the host in addition to their nutritional value.

Prebiotics are food ingredients that have a beneficial effect through their selective metabolism in the intestinal tract. These food ingredients can selectively promote the growth of the “good” intestinal bacteria.

Food supplements containing both probiotics and prebiotics, which work together to increase the number of “good” bacteria in your intestine, are called *synbiotics*.

Probiotics, prebiotics, and synbiotics are considered as food supplements. As such they can be obtained without a prescription.

They may be found in certain food products such as yogurts and fermented milk, or in over the counter preparations in the form of capsules, pills, and powders. Some food companies have also intentionally added probiotic bacteria to other various food products. However, the amount of the probiotic bacteria in these products is usually relatively low.

Is there evidence that probiotics can help in functional GI disorders?

The beneficial effects of probiotics in promoting health and helping with certain disease conditions have been known for many years. However, the data on the effects of probiotics in functional GI disorders is still limited. Most of the early studies that were done in functional bowel disorders were small and with significant methodological limitations thus leading to inconsistent results. Only in the last few years have researchers began to accumulate more solid data on the use of probiotic in patients with these disorders.

The results of these studies have shown that daily supplementation of diet with certain probiotics can . . .

- improve intestinal physiology (e.g., increase intestinal transit, reduce sensation),
- improve symptoms (e.g., bloating, gas, and discomfort), and
- improve overall wellbeing.

So far these studies give us useful information. They support the idea that changing the intestinal microbiota with probiotic supplements may be effective in improving intestinal function and symptoms. They also show that more research is needed.

- New research studies continue to give us more information about possible beneficial effects of certain probiotics in patient with functional GI symptoms.

- Currently only a few of the probiotic products that were tested and shown to be beneficial in clinical trials are actually available for consumers. Most of the available probiotic products were not clinically tested in patients with functional GI symptoms.
- More research, with the actual available products, is needed before a definitive recommendation can be made regarding the value of using probiotics in patients with functional bowel disorders.

How should I begin treatment with probiotics?

If you have persistent GI symptoms, including pain, change in bowel habits, or bloating it is advised that you discuss these symptoms with your doctor before attempting self-treatment. Your physician may need to do some testing in order to come up with the clinical diagnosis related to your symptoms. If you have a diagnosis of a functional bowel disorder such as IBS, you can discuss trying a probiotic supplement with your physician. Probiotics can be used as a first line treatment. They can also be used in combination with any other treatment, including other conventional therapies such as prescription medications.

- Consult your doctor before beginning a probiotic supplement.

What things should I be concerned about or taking notice of while taking probiotic supplements?

While you are taking probiotics, you should observe your symptoms and perhaps keep a log of your progress. This will help you to notice if the probiotic you are taking is right for you. While the use of certain probiotics may help some persons with functional bowel conditions, in others use may lead to worsening of their GI symptoms or even the development of new symptoms. Side effects may include abdominal bloating and gas, abdominal discomfort, loose stool, and itching in the area between the pubic bone and tail bone.

Observe your bloating, gas, abdominal distention, and bowel movements. Do any of these symptoms improve? Do not expect immediate changes, but rather, take the supplement on a daily basis and observe your symptoms over a period of several weeks. If you notice a significant

worsening in your symptoms, stop taking the probiotic supplement and talk to your doctor.

- Certain probiotics may help some, but not all, persons with functional bowel conditions.
- Certain probiotics may lead to new or worsening of functional GI symptoms such as bloating and gas.
- Observing your symptoms over several weeks may help you decide if the probiotic you are taking is right for you.

For many people with GI symptoms that are otherwise in good health (no other chronic diseases or conditions besides functional GI symptoms), probiotic supplements in general are a relatively low-risk and sometimes low-cost treatment. Unless allergic to the ingredients used with the probiotic preparation, most healthy people are not exposed to any serious harmful effects from taking probiotics.

How do I choose the right probiotic supplement?

It is important to remember that although the use of probiotics can be helpful in functional bowel conditions not all probiotics are the alike and not all available probiotic formulations will be effective for all patients. Some may even be harmful when given to patients with certain diseases.

- Consult your doctor before beginning any regimen of regular probiotic consumption.
- Most of the available probiotic products were not tested in clinical trials in patients with functional GI disorders.
- Look for probiotic products that were clinically tested for the specific condition and symptoms you are looking to improve.

If this doesn't work, what should I do next?

The recent findings on probiotics suggest a promising, relatively low-risk way to treat some functional GI symptoms. However, remember that your personal GI

symptoms may react differently than expected, or not at all, to probiotic supplements.

- Treatment of functional GI symptoms by probiotics or antibiotics may not be helpful in all patients.
- There is no reason to continue taking probiotics if they do not help with your symptoms

Summary

Research to date shows that there are many factors which contribute to functional GI symptoms. Altered intestinal microbiota is probably only one of these factors. If targeting the intestinal microbiota by probiotics or antibiotics does not help your symptoms you may consider other treatment modalities such as changes in your diet, taking prescribed medications, or other therapies.

In general, it is a good idea to stay up-to-date with the latest clinical data about functional GI disorders. Our understanding of these conditions and the symptoms associated with them is constantly being updated with new findings and options for treatment. Treatment with probiotics may yield promising results for those suffering from functional GI symptoms.

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