



Diet and nutrition concerns of patients with inflammatory bowel disease (IBD) are extremely common, and understandable. Because Crohn's disease and ulcerative colitis are diseases of the digestive tract, it is only natural that you will have many questions about diet and nutrition if you have been diagnosed with one of these diseases. Patients often believe that their disease is caused by and can be cured by diet. Unfortunately, that seems to be too simplistic an approach, which is not supported by clinical and scientific data. Diet can certainly affect symptoms of these diseases, and may play some role in the underlying inflammatory process; however, you may be surprised to learn that there is no evidence that anything in your diet history caused or contributed to these diseases. Though once you develop IBD, paying special attention to what you eat may go a long way toward reducing symptoms and promoting adequate nutrition.

The information provided here offers a general dietary guide for patients and their families. It is based on the results of ongoing studies and the accumulation of knowledge gained in recent years. As this research continues, we will learn even more about the relationship between diet, nutrition, and IBD.

Is nutrition of special importance to IBD patients?

Yes, vitally so. IBD patients, especially people with Crohn's disease whose small intestine is affected, are prone to becoming malnourished for several reasons:

- Loss of appetite — a result of nausea, abdominal pain, or altered taste sensation — may cause inadequate food intake.
- Chronic disease tends to increase the caloric or energy needs of the body; this is especially true during disease flares.
- IBD — particularly Crohn's disease — is often associated with poor digestion and malabsorption of protein, fat, carbohydrates, water, and a wide variety of vitamins and minerals.

Good nutrition is one of the ways the body restores itself to health. Therefore, every effort must be made to avoid becoming malnourished. Restoring and maintaining good nutrition is a key principle in the management of IBD for several reasons, including the following:

- Medications tend to be more effective in people with good nutritional status.
- When proteins and other nutrients are lost in IBD, more food must be taken in to compensate for these losses; that may be difficult for many patients when intestinal symptoms are active.
- Lost proteins, calories, and other nutrients may cause growth delays in children and teenagers.
- Weight loss in women and girls can have an impact on hormonal levels, resulting in menstrual irregularities.

How do Crohn's disease and ulcerative colitis interfere with digestion?

To get a better idea of how diet affects people with IBD, here's a brief explanation of the way in which the body processes the food you put into it. The real work of the digestive system takes place in the small intestine, which lies just beyond the stomach. In the small intestine, digestive juices (termed bile)

from both the liver and pancreas mix with food. This mixing is powered by the churning action of the intestinal muscle wall. After digested food is broken down into small molecules, it is absorbed through the lining of the small intestine and distributed to the rest of the body by way of the bloodstream. Watery food residue and secretions that are not digested in the small intestine pass on into the large intestine (colon). The colon reabsorbs much of the water added to food in the small intestine. This is a kind of water conservation or “recycling” mechanism. Solid, undigested food residue is then passed from the large intestine as a bowel movement.

When the small intestine is inflamed — as it often is with Crohn's disease — the intestine becomes less able to fully digest and absorb the nutrients from food. Such nutrients, as well as unabsorbed bile salts, can escape into the large intestine to varying degrees, depending on how extensively the small intestine has been affected by inflammation. This is one reason why people with Crohn's disease become malnourished, in addition to just not having much appetite. Furthermore, incompletely digested foods that travel through the large intestine interfere with water conservation, even if the colon itself is not inflamed. Thus, when Crohn's disease affects the small intestine, it may cause diarrhea as well as malnutrition. Should the large intestine also be inflamed, the diarrhea may become even more extreme.

In ulcerative colitis, only the colon is inflamed; the small intestine continues to work normally. But because the inflamed colon does not recycle water properly, diarrhea can be severe.

How does nutrition affect growth?

In young people with IBD who were diagnosed before puberty, growth may be delayed. Poor food intake may further contribute to poor growth. Thus, good nutritional habits and adequate caloric intake are very important. Control of the disease with drugs or, less often, surgical removal of a particularly diseased region of intestine, is most successful when appropriate dietary intake is also maintained.

Is IBD caused by allergy to food?

No. Although some people do have allergic reactions to certain foods, neither Crohn's disease nor ulcerative colitis is related to a food allergy. People with IBD may think they are allergic to foods because they associate the symptoms of IBD with eating, but this is called a food intolerance.

Do any specific foods worsen the inflammation of IBD?

No. Although certain foods may aggravate symptoms of these diseases, there is no evidence that the inflammation of the intestine is directly affected. Obviously, any contaminated food that leads to food poisoning or infection will aggravate IBD.

Is there a special diet for people with IBD?

There is no one single diet or eating plan that will do the trick for everyone with IBD. Dietary recommendations must be individualized. They should be tailored just for you — depending on which disease you have and what part of your intestine is affected. Furthermore, these diseases are not static; they change over time, and eating patterns should reflect those changes. The key point is to strive for a well-balanced, healthy diet. Healthy eating habits, of course, are desirable for everyone but they're especially important for people with IBD.

Which foods should be avoided?

Again, there are no blanket rules or recommendations. If a particular food causes digestive problems, try to avoid it. But it's important to distinguish between an actual allergy to one kind of food and an intolerance. Many people have food intolerances — far more than really have true food allergies. Elimination tests are better at diagnosing which foods must be avoided or modified than the standard



allergy skin or blood testing. Many good books discuss the proper way to follow such an “elimination diet,” which involves keeping a food and symptom diary over several weeks.

In fact, a food diary can help pinpoint which foods are troublesome for you, but it can also reveal whether or not your diet is providing an adequate supply of nutrients. It may be helpful for you to seek a dietitian. By reviewing your food diary, your dietitian can see if you are getting the recommended daily allowances (RDAs) for a person of your age, sex, and size. If not, the dietitian can suggest ways to adjust your diet so that your intake of nutrients is improved. That may mean increasing the amount of food you eat, changing what you eat, or adding supplements to your diet.

It’s important to remember that it’s not just the amount of food you consume that guarantees a healthy diet. Your daily intake needs to include an adequate amount of calories and nutrients. A balanced diet should contain a variety of foods from all food groups. Meat, fish, poultry, and dairy products, if tolerated, are sources of protein; bread, cereal, starches, fruits, and vegetables are sources of carbohydrates; margarine and oils are sources of fat.

Should people with IBD be concerned about fluid intake?

Yes. In a condition with chronic diarrhea, the risk of dehydration always exists. If fluid intake does not keep up with diarrhea, kidney function may be affected. Patients with Crohn’s disease and other diarrheal diseases have an increased risk of kidney stones, which is related to this problem.

Furthermore, dehydration and salt loss create a feeling of weakness. For these reasons, people with IBD should consume ample fluids, especially in warm weather when loss of salt and water through the skin may be high. A good rule of thumb is to drink one half ounce per day for every pound of body weight. That means that if you weigh 140 pounds, you should drink at least 70 ounces a day, or eight and three-quarters glasses. Sip your beverages, rather than gulp them. By introducing air into the digestive system, gulping can cause discomfort.

What's the best way to decrease intestinal cramping after eating?

During periods of disease flares, eating may prompt abdominal discomfort and cramping. Here are some ways to reduce these symptoms:

- **Eat smaller meals at more frequent intervals:** five small meals (think in terms of “fist-sized” portions) every three or four hours, for example, rather than the traditional three large meals a day.
- **Reduce the amount of greasy or fried foods in your diet.** Butter, margarine, cream sauces, and pork products may all cause diarrhea and gas if fat absorption is incomplete. These symptoms tend to occur more in people who have had large amounts of small bowel (particularly ileum) removed.
- **Limit consumption of milk or milk products if you are lactose intolerant.** Some people cannot properly digest lactose, the sugar present in milk and many milk products, regardless of whether they have IBD. This may occur because the inner surface of the small intestine lacks a digestive enzyme called lactase. Poor lactose digestion may lead to cramping, abdominal pain, gas, diarrhea, and bloating. Because symptoms of lactose intolerance may mimic those of IBD, it may be difficult to recognize lactose intolerance. A simple lactose tolerance test can be performed to identify the problem. If there is any question, milk consumption may be limited. Alternatively, lactase supplements may be added to many dairy products so that they no longer cause symptoms. Your dietitian may assist you and/or your child with this. However, it’s desirable to maintain intake of at least some dairy products because they represent such a good source of nutrition, particularly vitamin D, calcium, and protein.
- **Restrict your intake of certain high-fiber foods** such as nuts, seeds, corn, popcorn, and various Chinese vegetables. If there is narrowing of the bowel, these foods may cause cramping. High-fiber

foods also provoke contractions once they enter the large intestine. Because they are not completely digested by the small intestine, these foods may also cause diarrhea. That is why a low-fiber, low-residue diet (see below) is often recommended.

However, some people who follow these guidelines may still continue to experience abdominal cramping following eating. In these cases, medication may be helpful in reducing intestinal inflammation allowing the bowel to work more normally. Speak with your doctor to see if taking antispasmodics or antidiarrheal medications 15 to 20 minutes before eating may be helpful for you. Antispasmodics or antidiarrheal medications may be helpful in reducing symptoms and maintaining good nutrition, particularly when the disease is mild; they should be avoided with more severe disease.

What is a low-fiber with low-residue diet?

About two-thirds of people with small bowel Crohn's disease develop a marked narrowing (stricture) of the lower small intestine, the ileum. For these patients, a low-fiber with low-residue diet or a special liquid diet may be beneficial in minimizing abdominal pain and other symptoms. This diet minimizes the consumption of foods that add "scrappy" residue to the stool. These include raw fruits, vegetables, and seeds, as well as nuts and corn hulls. The registered dietitian associated with your IBD treatment program can assist you in planning a low-residue diet when appropriate. Often, these dietary adjustments are temporary; the patient follows them until the inflammation that caused the narrowing responds to medical treatment or a corrective surgical procedure.

It is important, however, to watch out that you do not impose too many food restrictions on yourself or your child. These limit variety in the diet and make a balanced intake of foods more difficult to achieve.



Is there a place for fast or "junk" food?

Children with IBD face special challenges, and eating nutritiously is high up on the list. Parents would like to think that there's no place in a healthy diet for fast food, but this may not be true. Some of these foods provide a valuable supply of nutrients as well as calories. Take pizza, for instance. The cheese offers calcium, protein, and vitamin D; the tomato sauce provides vitamins A and C; and the crust supplies B vitamins. The same is true for other popular favorites such as hamburgers or cheeseburgers, although all of these foods also contain more fat and salt than should be consumed on a regular basis. Milk shakes and ice cream also offer a good source of calcium, proteins, and calories. If lactose intolerance is a problem, that can be overcome by taking commercially available lactase in tablet form before consuming any dairy products.

Do patients with IBD absorb foods normally?

Most often, yes. Patients who have inflammation only in the large intestine absorb food normally. People with Crohn's disease may have problems with digestion if their disease involves the small intestine. They may eat enough food but cannot absorb it adequately. In fact, up to 40 percent of people with Crohn's disease do not absorb carbohydrates properly. They may experience bloating, gas, and diarrhea as well as a loss of important nutrients. Fat malabsorption is another problem in Crohn's disease, affecting at least one-third of patients. At particular risk are people who have had terminal ileal resections. The degree to which digestion is impaired depends on how much of the small intestine is diseased and whether any intestine has been removed during surgery. If only the last foot or two of the ileum is inflamed, the absorption of all nutrients except vitamin B-12 will probably be normal. If more

than two or three feet of ileum is diseased, significant malabsorption of fat may occur. If the upper small intestine is also inflamed, the degree of malabsorption in Crohn's disease may be much worse, and deficiencies of many nutrients, minerals, and more vitamins are likely.

Should supplemental vitamins be taken? If so, which ones?

For most people with chronic IBD, it is worthwhile to take a multivitamin regularly. What you need depends on the extent and location of the disease. As noted above, vitamin B-12 is absorbed in the lower ileum. That means that people who have ileitis (Crohn's disease that affects the ileum) or those who have undergone small bowel surgery may have a vitamin B-12 deficiency because they are unable to absorb enough of this vitamin from their diet or from oral supplements. To correct this deficiency (which can be determined by measuring the amount of this vitamin in the blood), a monthly intramuscular injection of vitamin B-12 may be required. Folic acid (another B vitamin) deficiency is also quite common in patients who are taking Aminosalicylates (5-ASA). For these patients, the recommended dietary allowance for a folate tablet is 1 mg daily. If you suffer from maldigestion or have undergone intestinal surgery, other vitamins — particularly vitamin D — may be required. Affecting as many as 68 percent of people in the United States, vitamin D deficiency is one of the most common nutritional deficiencies in Crohn's disease. Vitamin D is essential for good bone formation and for the metabolism of calcium. The recommended dietary allowance for supplementation of this vitamin is in the range of 800 I.U./day, especially in the non-sunny areas of the country, and particularly for those with active disease. Together with vitamins A, E, and K, vitamin D is a fat-soluble vitamin; these tend to be less easily absorbed than water-soluble vitamins. Consequently, they may be absorbed better in liquid rather than pill form.

Are any special minerals recommended?

In most IBD patients, there is no obvious lack of minerals. However, iron deficiency is fairly common in people with ulcerative colitis and Crohn's disease affecting the colon and less common in those with small intestine disease. It results from blood loss following inflammation and ulceration of the colon. Blood iron levels are easily measured, and if a deficiency is found (otherwise known as anemia), oral iron tablets or liquid may be given. The usual dose is between 8 to 27 mg, taken one to three times a day, depending on the extent of the deficiency and the patient's tolerance. Oral iron turns the stool black, which can be mistaken for intestinal bleeding. Other mineral deficiencies include potassium and magnesium. People may develop potassium deficiencies with diarrhea or vomiting, or as a result of prednisone. Potassium supplements are available in tablet and other forms. Oral supplements of magnesium oxide may prove necessary for people who have magnesium deficiency caused by chronic diarrhea or extensive small intestinal disease, or those who have had substantial amounts of intestine removed through surgery.

Trace elements are nutrients that are absorbed in the body in minute quantities. Still, they are essential for some important biologic functions. Deficiencies in trace elements are noted in people with advanced Crohn's disease, mainly those with poor nutritional intake or extensive small intestine disease.

Calcium deficiency and bone disease in IBD

One of the more important deficiencies seen in association with IBD is calcium deficiency, either alone or in conjunction with vitamin D deficiency. People with IBD may have limited intake of calcium in their diet, avoiding dairy products because they have a lactose intolerance or because they think they have one. Other people may consume enough calcium in their diet but do not absorb it properly because of small intestine disease or resection. Certain medications used in IBD may also have an adverse effect on bone health. Long-term use of prednisone and other steroids, for example, slows the process of new bone formation and accelerates the breakdown of old bone. It also interferes with calcium absorption.

In addition to steroid use, Crohn's disease itself has been shown to be linked with bone thinning and osteoporosis, so screening with bone density studies is suggested for those at risk.

If prednisone cannot be discontinued altogether, a reduction in dosage or taking medication during the day may help prevent IBD related bone loss. Patients should aim for at least 1,500 mg of calcium daily, either through foods or as supplements taken in three divided doses during the day. Vitamin D supplements (see above) are also recommended.

Research is currently under way to determine whether other therapies for bone disease, such as those used in people with postmenopausal osteoporosis might be appropriate for IBD-related bone loss. These include the bisphosphonates (such as Fosamax[®]), calcitonin, and fluoride.

What is nutritional support?

Because IBD, especially Crohn's disease, may improve with nutritional support, it may be necessary to provide nutrition by delivering a nutrient-rich liquid formula directly into the stomach or small bowel. Known as enteral nutrition, this type of feeding is given overnight through a tube, most commonly from the nose to the stomach. This is called a nasogastric (NG) tube. This method ensures that patients receive nutrition while sleeping. In the morning, they remove the tube and go to work or school and generally pursue their normal activities. In this way, patients receive all the nutrition they need and are free to eat normally (or not) throughout the day. Enteral feedings can also be given through a gastrostomy tube (G-tube). A gastrostomy is a surgically created opening through the abdominal wall, leading directly into the stomach. The feeding tube is passed through this opening. The feedings are most commonly given overnight, but they can also be given intermittently throughout the day. Some patients prefer this approach because it avoids the discomfort of passing a tube down through the nose.



Total parenteral nutrition (TPN) is delivered through a catheter placed into a large blood vessel, usually one in the chest. Although it bypasses the intestine and thereby allows the bowel to rest, parenteral nutrition may create more complications than enteral nutrition. It is also more expensive than the other methods of nutritional support and requires more specialized training to use.

What's new in nutritional therapy for IBD?

Eating to help the gut heal itself is one of the new concepts in IBD treatment, and numerous studies are being conducted in this area.

The use of probiotics are just beginning to be appreciated as helpful in IBD. Probiotics are "good" bacteria that restore balance to the gut microflora-bacteria that live in everybody's intestine. Lactobacillus preparations and live-culture yogurt can be very helpful in aiding recovery of the intestine. There is much work being done in the use of diet and supplements to aid in the healing of IBD and much more to be learned.

CCFA Partners: Diet Research

In the study "Dietary Patterns and Self-Reported Associations of Diet with Symptoms of Inflammatory Bowel Disease," completed by Cohen et al. (2012) as part of the CCFA Partners research initiative, yogurt, white rice, and bananas were more frequently reported to improve symptoms whereas non-leafy vegetables, spicy foods, fruit, nuts, leafy vegetables, fried foods, milk, red meat, soda, popcorn,

dairy, alcohol, high-fiber foods, corn, fatty foods, seeds, coffee, and beans were more frequently reported to worsen symptoms. You can find out more information about these results in the abstract or manuscript of this study published here: www.ccfapartners.org.

In summary, while there is no evidence that diet and nutrition play a role in causing IBD, maintaining a well-balanced diet that is rich in nutrients can help you to live a healthier life. Proper nutrition depends, in large part, on whether you have Crohn's disease or ulcerative colitis, and what part of your intestine is affected. It's important to talk to your doctor. It also can be helpful to ask your physician to recommend a dietitian to develop a diet that works for you.

Helpful Tips

There is not one set diet that is applicable to everyone with IBD. It is an individualized plan. Modifications in diet depend on the symptoms you experience, the extent of your disease, and many other factors determined by the doctor.

Two of the common symptoms of IBD are diarrhea and cramping. Here are a few tips to keep in mind when experiencing these symptoms:

- Eat small and frequent meals
- Consider nutritional supplements if there is weight loss and if your doctor approves
- Avoid seeds, nuts, corn and popcorn
- Limit consumption of milk or milk products if you are lactose intolerant
- Reduce the amount of greasy or fried foods in your diet

(Clip out and save.)

Foods/Beverages to TRY	Foods/Beverages to AVOID
<ul style="list-style-type: none">• Bananas, applesauce, canned varieties of fruit• White bread, crackers made with white flour, plain cereals• White rice, refined pastas• Potatoes without the skin• Cheese (if you're not lactose intolerant)• Smooth peanut butter• Bland soft foods• Cooked vegetables• Broth• Broiled or steamed fish (e.g., herring, salmon, halibut, flounder, swordfish, or pollack)• Canola and olive oils• Low sugar sports drink and Crystal Light® diluted with water• Fruit juices	<ul style="list-style-type: none">• Fresh fruit• Prunes, raisin, or dried fruit• Uncooked vegetables and raw foods• High-fiber foods (such as fiber-rich breads, cereals, nuts, and leafy greens)• High sugar foods• Skins, seeds, popcorn• High fat foods• Spicy foods• Beans• In some cases dairy products• Large food portions• Caffeine in coffee, tea, and other beverages• Ice-cold liquids (even water),• Too much of any type of liquid

Journal: It is always important to keep a food journal to help you understand the foods you are able to tolerate and not tolerate during the time of a flare. To find an example of a food journal visit <http://www.ccfacommunity.org> or www.cdfa.org/gibuddy.

If possible, it is helpful to consult with a dietitian. They can help you develop specific dietary plan for your case. The dietitian can also review your food journal to see if there are any patterns in your diet in relation to your symptoms.

Diet Resources

<http://www.cdfa.org/resources/webcasts.html> – Archived webcasts

http://www.cdfa.org/assets/pdfs/surgery_brochure_final.pdf – Surgery brochure (Pg. 15 has a food chart)

<http://www.cdfa.org/assets/pdfs/diningout.pdf> – Dining out with IBD

http://www.ccfacommunity.org/ResourceCenterDocuments/CCFA_DailyFoodJournal.pdf – Food Journal

<http://www.ibdetermined.org/> – IBDetermined (Diet Journey)

<http://www.ibdetermined.org/ibd-information/ibd-diet.aspx> – Diet information via IBDetermined

www.cdfa.org/gibuddy – Online tool and mobile app.

For further information, call CCFA at our Information Resource Center: 888.MY.GUT.PAIN (888.694.8872).

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