

Diet, Nutrition, and Inflammatory Bowel Disease



CROHN'S & COLITIS
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What's Inside

About Crohn's & Colitis	2
Impact of IBD on Maintaining Healthy Nutrition	4
Healthy Diet and Nutritional Choices	8
Tips for Managing IBD with a Healthy Diet	15
Vitamin and Mineral Supplementation	25
Guide to Dietary Supplements	30
Nutritional Support Therapy	32
Impact of Surgery on Diet and Nutrition	34
Managing Diet & Nutrition During a Flare	35
Final Words About Diet, Nutrition and IBD	39
Diet Research	40
Enclosed Resources	41
Credits	42
Glossary	43
About CCFA	Inside Back Cover

Information contained within this brochure is up-to-date as of the print date. Due to rapid advances and new findings, there may be changes to this information over time. You should always check with your doctor to get the most current information. This information should not replace the recommendations and advice of your doctor.

Food choices can become more complicated since certain foods may worsen symptoms.

When you are first diagnosed with Crohn's disease or ulcerative colitis, there are many choices you will need to make. For many people with Crohn's disease or ulcerative colitis, collectively called inflammatory bowel disease (IBD), the simple act of eating can no longer be taken for granted. Because IBD affects the digestive system, diet and nutrition are impacted in a variety of ways. Food choices can become more complicated since certain foods may worsen symptoms. Attention must be paid to avoiding foods that worsen or trigger disease symptoms. In addition, it is important to learn how to make healthy food choices, replace nutritional deficiencies and maintain a well-balanced nutrient-rich diet. This brochure explains the impact of IBD on diet and nutrition and provides practical information to help you eat well, stay healthy, learn to minimize diet-related problems and enjoy what you eat.

About Crohn's & Colitis

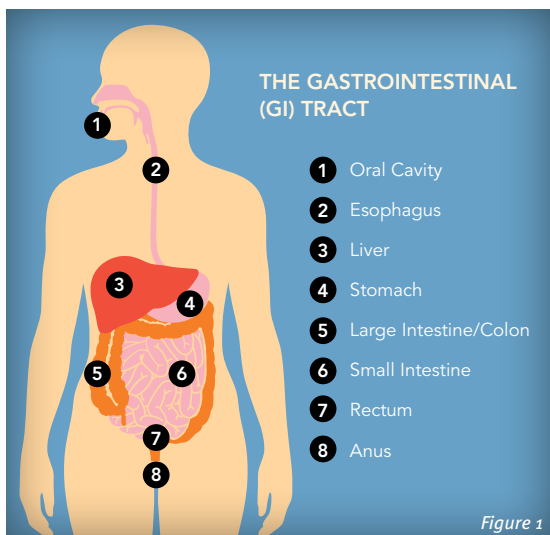
Crohn's disease and ulcerative colitis belong to a group of conditions known as inflammatory bowel diseases (IBD).

These disorders cause chronic inflammation in the gastrointestinal (GI) tract, the area of the body where digestion and absorption of nutrients take place. Inflammation is the body's response to tissue injury. Normally, inflammation helps protect the body from harmful germs, damaged cells or irritants, but in IBD, the immune system reacts inappropriately, leading to inflammation. Inflammation impairs the ability of affected GI organs to function properly. Ongoing inflammation leads to symptoms such as abdominal pain and cramping, diarrhea, rectal bleeding, weight loss and fatigue.

To learn more about these diseases, view:

- Living with Crohn's Disease at: online.cdfa.org/crohnsdisease
- Living with Ulcerative Colitis at: online.cdfa.org/ulcerativecolitis





The Gastrointestinal System

To understand the relationship between diet, nutrition and IBD, it is helpful to know how the gastrointestinal tract processes the food we eat. The GI tract consists of a series of mostly hollow organs beginning at the mouth, followed by the esophagus, stomach, small intestine, colon, rectum and anus (see Figure 1).

The roles of the gastrointestinal system are:

- **Digestion**—the breakdown of food
- **Absorption of nutrients and water**
- **Elimination of waste**

The Effect of IBD on Digestion

In people with IBD, inflammation in the organs of the digestive tract can affect the process of digestion. Inflammation in the small intestine of a person with Crohn's disease can interfere with the digestion and absorption of nutrients. Incompletely digested food that travels through the colon may cause diarrhea and abdominal pain. In a person with ulcerative colitis, the small intestine works normally, but the inflamed colon does not absorb water properly,

resulting in diarrhea, increased urgency to have a bowel movement and increased frequency of bowel movements.

Impact of IBD on Maintaining Healthy Nutrition

People with IBD may have difficulty maintaining healthy nutrition for a variety of reasons, including disease symptoms, complications and medication.

IBD Symptoms

During times of disease flares, diarrhea, urgency to have a bowel movement, abdominal pain, nausea, vomiting, blood in the stool, constipation, loss of appetite, fatigue and weight loss can negatively impact nutrition.

Severe diarrhea can cause dehydration, robbing the body of fluids, nutrients and electrolytes (sodium, potassium, magnesium and phosphorus). People with Crohn's disease and ulcerative colitis often have a reduced appetite as a result of nausea, abdominal pain or altered taste sensation. This can make it difficult to consume enough calories and obtain sufficient nutrients. Additionally, the need to have numerous bowel movements in a day may cause a person with IBD to shy away from eating too much to avoid symptoms. Eating too little puts people at risk for being malnourished.

Another possible symptom of IBD is rectal bleeding resulting from sores (ulceration) that form in the inner lining of the intestinal tract, leading to blood loss. Chronic blood loss can eventually lead to anemia, which if left unchecked, may cause fatigue.

Weight loss may occur as a result of diarrhea and loss of appetite due to abdominal pain, nausea, vomiting or worsening diarrhea. In addition, the inflammatory process in Crohn's disease and ulcerative colitis can result in increased consumption of stored energy and a breakdown of the body's tissues, often resulting in weight loss despite adequate caloric intake.

IBD Complications

Malabsorption of nutrients

Inflammation in the small intestine of a person with Crohn's disease can interfere with the absorption of nutrients. This is called malabsorption. Amino acids (from proteins), fatty acids (from fats), sugars (from carbohydrates), vitamins and minerals are mostly absorbed from the last two sections of the small intestine (jejunum and ileum).

The degree of malabsorption depends on how much of the small intestine is affected by Crohn's disease, whether the disease is active and if any portion of the intestine has been surgically removed. Generally, the malabsorption and nutrient deficiencies tend to be more significant if larger sections of the small intestine are inflamed or removed. If a significant portion of the ileum is inflamed or removed, the absorption of fat-soluble vitamins (A, D, E and K) and vitamin B12 will likely be affected.

Bile acids or bile salts (responsible for aiding in absorbing fats and making the stool brown in color) can also be malabsorbed if the ileum is inflamed or removed. This can result in excess bile salts being transported to the colon where they cause increased fluid secretion in the colon and watery diarrhea. If a larger section

of the ileum is affected, malabsorption of fatty acids may occur, resulting in abdominal cramping, diarrhea, malabsorption of fat-soluble vitamins and weight loss.

Patients with ulcerative colitis may have less significant nutrient deficiencies; however, weight loss and anemia can be prominent due to severe diarrhea and blood loss.

Growth delays

Some children with IBD fail to grow at a normal rate. Possible causes of poor growth include the impact of intestinal inflammation on nutrition (as described above in “IBD Symptoms”), long-term use of corticosteroid medications (which have a negative impact on bone growth) and general poor nutrition.

To minimize the negative effects of IBD on growth, good eating habits, adequate caloric intake and control of the underlying disease are essential for children. It is also important for children to be monitored carefully for proper weight gain and growth. If your child is not staying on their typical growth curve, it may be necessary to consult your physician or a registered dietitian for help with evaluating caloric and nutrient intake.



Decreased bone mineral density

Decreased bone mineral density (low bone mass) is common in children, adolescents and adults with IBD. Severe forms of decreased bone mineral density (osteoporosis) increases the risk for bone fracture. This may be due to insufficient calcium intake, poor absorption of calcium, vitamin D deficiency, decreased physical activity, inflammation and/or long-term use of medications such as corticosteroids (as previously discussed). Calcium helps to form and maintain healthy bones and teeth, and vitamin D is needed to help the body use calcium.

Strictures

In some people with Crohn's disease, chronic inflammation in the intestine can cause the walls of the intestine to narrow and also form scar tissue. The scar tissue can cause narrowing of the passageway, making it difficult for digested food to pass easily through the intestine. Narrowing of the intestine is called a stricture. Dietary modifications such as a low fiber or liquid diet along with medication may be necessary if the stricture is mostly inflammatory. If the narrowing is mostly scar tissue, surgery may be needed to widen the narrowed section or remove it. A low-fiber or liquid diet is often prescribed until surgery is performed.

IBD Medications

Medications tend to be more effective in people with good nutritional status. Certain medications used in IBD may also have adverse effects on nutrition. Corticosteroids may affect nutrition in many ways by increasing appetite, increasing serum glucose levels, increasing the risk for diabetes and affecting electrolyte (mineral) levels.

Although effective for reducing inflammation, steroids have potential adverse effects when used for long periods of time. For example, they can slow the process of new bone formation and accelerate the breakdown of old bone.

Steroids also interfere with calcium absorption and may also decrease bone mineral density as previously discussed. Most bone loss occurs in the first six months of corticosteroid use. Supplementation with calcium and vitamin D can help protect bone health, especially while patients are treated with steroids.

Patients on sulfasalazine and methotrexate should receive supplemental folic acid. Cholestyramine, which is used sometimes to treat bile acid diarrhea, may decrease the absorption of fat-soluble vitamins. Check with your doctor or pharmacist to find out if any of your medications could interfere with your nutrition.

Healthy Diet and Nutritional Choices

Diet and nutrition are important aspects of IBD management.

“Diet” refers to the foods we eat. “Nutrition” is a term that refers to properly absorbing food and staying healthy. A well-balanced diet with adequate intake of protein, carbohydrates and fat, as well as vitamins and minerals, is necessary for nutrition. This can be achieved by eating a variety of foods from all the food groups (See Figure 2). Meat, fish, poultry and dairy products are sources of protein. Bread, cereal, starches, fruits and vegetables are sources of carbohydrates. Butter, margarine and oils are sources of fat.

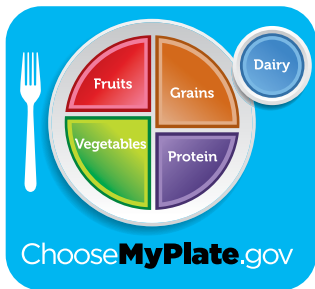


Figure 2

The United States Department of Agriculture (USDA) has general recommendations on healthy eating, such as how much of each food group is needed and the health benefits of the food in each group. This information is on the USDA website (www.choosemyplate.gov).

Having a chronic, active disease, such as Crohn's disease or ulcerative colitis, tends to increase the body's requirements for calories, nutrients and energy. During disease flares, it may be difficult to maintain adequate nutrition. However, maintaining good nutrition helps improve overall wellness, promotes healing and immunity, increases energy levels and may alleviate some gastrointestinal symptoms.

Is there an IBD Diet?

There is no evidence to suggest that any particular food or diet causes, prevents or cures IBD. There is no one special IBD diet. A few diets are advertised specifically for managing IBD, including the Specific Carbohydrate Diet™ and The Maker's Diet (see page 44).

It is important to note that people may report success with these and other diets in alleviating symptoms, but there has been no scientific evidence supporting these diets. Additionally, the diets may be very restrictive and difficult to follow. The Crohn's & Colitis Foundation of America (CCFA) does not promote any one diet.



Researchers are continuing to study the interaction between diet and IBD. More information on diet research can be found on [page 40](#). For now, dietary recommendations are generally aimed at easing symptoms during flares and ensuring an overall adequate intake and absorption of nutrients, vitamins and minerals.

Is there a place for fast or “junk” food?

Individuals with IBD face special challenges, and eating nutritiously is high on the list of issues to consider. Some fast 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. Milkshakes and ice cream also offer a good source of calcium, proteins and calories. If lactose intolerance is a problem, sometimes it can be overcome by taking commercially available lactase in tablet form or using lactose free products. Junk food should be eaten in moderation.

Developing an Individual Diet

Many people with IBD can consume a normal diet during times of disease remission but may need to alter their diet during flares. Other people with IBD, such as patients with intesti-

nal strictures, will need to stay on a modified diet until the stricture is successfully treated medically or surgically.

The individual diet should be based on:

- Symptoms (diarrhea, constipation, abdominal pain, etc.)
- Whether the person is in remission or experiencing a flare
- Location of disease
- Presence of narrowing of the small intestine (strictures)
- Any prior surgeries
- Whether there are any specific nutritional deficiencies (such as iron deficiency)

Impact of Certain Foods

During flares, certain foods or beverages may irritate the digestive tract and aggravate symptoms. Not all people with IBD are affected by the same foods, and it may be necessary to experiment to discover which foods affect symptoms the most. Keeping a food journal (see “Resources” section) may help you to track how your diet relates to your symptoms and identify trigger foods.

Possible Trigger Foods and Food Intolerances

Food allergies and intolerances

Neither Crohn’s disease nor ulcerative colitis is caused by a food allergy. Yet some people with IBD may also have food allergies. The most common foods causing an allergic reaction are milk, eggs, peanuts, tree nuts (e.g., walnuts, almonds, cashews, pistachios and pecans), wheat, soy, fish and shellfish.

It is important to distinguish between an actual food allergy and food intolerance. A food allergy is associated with an immune

system response and can cause a severe and life-threatening reaction, while a food intolerance can cause GI symptoms. Many people have food intolerances—far more than have true food allergies.

Elimination diets (avoiding trigger foods) are used to determine which foods must be avoided or minimized. This involves systematically removing foods or ingredients that may be causing symptoms. It is important to do this under the supervision of your doctor and a dietitian to be sure it is done correctly without causing poor nutrition. When eliminating foods, it is important to substitute other foods, that provide the same nutrients. For example, when eliminating dairy products, be sure to obtain calcium and vitamin D from other sources.

Fiber

Dietary fiber is found in plant foods, such as fruits, vegetables, nuts and grains. It is essential for health and for digestion. For many people with IBD, consuming fiber during times of disease flares or strictures can cause abdominal cramping, bloating and worsening diarrhea. But not all sources of fiber cause these problems, and some sources of fiber may help with IBD symptoms.

Soluble (ability to dissolve in water) fiber helps absorb water in the gut, slowing down the transit time of food that is stored there. It can help to reduce diarrhea by forming a gel-like consistency and delaying emptying of the intestine.

Insoluble fiber does not dissolve in water. It is more difficult to digest because it pulls water into the gut and makes food move more quickly through the gut. It is a harder more course fiber found in the skins of foods such as apples and seeds. Consuming insoluble fiber can aggravate IBD symptoms by causing more bloating, diarrhea, gas and pain. When there is severe inflammation or narrowing, consuming insoluble fiber can lead to worsening symptoms and a blockage in the intestinal tract.

Most foods contain a combination of fibers, so cooking, peeling and removing seeds are important for patients who are in a flare and need to reduce their intake of insoluble fiber.

Lactose

Lactose intolerance is a condition in which the body does not properly digest lactose, the sugar present in milk and milk products. Some people with IBD may be lactose intolerant. In addition, some people with IBD may only have problems with lactose digestion during a flare or after surgical removal of a segment of the small intestine.

Poor lactose digestion may lead to cramping, abdominal pain, gas, diarrhea and bloating. Because the symptoms of lactose intolerance may mimic those of IBD, it can be difficult to recognize lactose intolerance. Your doctor can perform a simple test called a lactose breath test to diagnose this condition. Not all people with IBD are lactose intolerant.

The severity of symptoms will depend on how much lactose an individual can tolerate. Some people may be able to consume small amounts of milk, while others may need to avoid it altogether. Lactase is the enzyme responsible for breaking down the lactose in dairy products. Lactase supplements can be taken along with milk to help digest it and specialty milk products that do not contain lactose are also available. Dairy products that contain yogurt and kefir may be more easily tolerated as well. Hard cheeses are generally well tolerated because of their minimal lactose content.

Milk and dairy products are important sources of nutrients, particularly calcium. Therefore, people who limit or eliminate milk and dairy products from their diet must be mindful about obtaining calcium from other food sources or from supplements.

High-fat foods

High-fat foods, such as butter, margarine and cream, may cause diarrhea and gas if fat absorption is incomplete. These symptoms tend to occur more in people who have inflammation in the small intestine or who have had large sections of the small intestine removed.

Gluten

Gluten is a protein found in grains including wheat, rye and barley products.

Some people with IBD may be sensitive to gluten and have gluten intolerance. These people may also have symptoms of abdominal bloating and diarrhea after eating gluten-containing food, and they may benefit from avoiding foods with gluten as well. A food diary can help determine the effect of gluten-containing food on symptoms. In addition, if you suspect you have symptoms to gluten, ask your doctor for a celiac disease test. Celiac disease is a inflammatory reaction to gluten and different from gluten intolerance.

Nonabsorbable sugars (sorbitol, mannitol)

Sugar alcohols, such as sorbitol and mannitol, cause diarrhea, bloating and gas in some people. These ingredients are often found in sugarless gums and candies. Sorbitol is also found in ice cream and in several types of fruits, such as apples, pears, peaches and prunes, as well as the juices of these fruits.

FODMAP (Fermentable Oligo-Di-Monosaccharides and Polyols)

FODMAPs are sugars that are found in certain carbohydrates and sugar alcohols. If someone has intolerance to foods high in FODMAPs it could result in excessive gas, bloating, diarrhea and cramping.

Foods that are high in FODMAPs include:

- Fructose—fruits, honey, high fructose corn syrup

- Lactose from dairy products
- Oligosaccharides are carbohydrates with a small number of simple sugars. These can be found in certain vegetables, cereals and legumes
- Polyols found in sugar alcohols (sorbitol, mannitol, xylitol) and certain fruits

The low FODMAP diet is an intricate eating plan that should be initiated with the help of a dietitian.

Tips for Managing IBD with a Healthy Diet

There is no single diet or eating plan for everyone with IBD, and dietary recommendations must be individualized.

However, there are some basic principles and guidelines to help you decide how and what to eat, especially during flares. People with IBD should maintain a diverse and nutrient-rich diet. When experiencing symptoms, it may help to:

- Eat smaller meals
- Have more frequent meals
- Eat in a relaxed atmosphere
- Avoid trigger foods
- Limit food with insoluble fiber (i.e., seeds, nuts, beans, green leafy vegetables, fruit and wheat bran)

- Reduce the amount of greasy or fried foods

It is important to remember that all IBD patients have different food intolerances. One may be sensitive to spicy food while another might be sensitive to popcorn.

See page 22 for a sample list of foods to try and foods to avoid.

The following recommendations are aimed at reducing uncomfortable symptoms, replacing lost fluids, preventing vitamin and mineral deficiencies, and providing adequate caloric intake.

Drink Plenty of Fluids

Beverages to try:

- Water
- Low-sugar sports drinks
- Fruit juices diluted with water



Beverages to Avoid

- Ice-cold liquids (can cause cramps in some cases)
- Caffeine in coffee, tea and other beverages (caffeine can act as a stimulant to “rev” up the bowel and result in diarrhea)

Everyone should drink plenty of fluids for good health. Our bodies, which are about 60 percent water, require a regular intake of water to stay hydrated. Water has essential functions in the body, such as keeping tissues moist, lubricating joints, protecting organs and preventing constipation. The amount of water to drink depends on several factors, such as physical activity, weather and health conditions. In general:

- Try to drink at least 64 ounces of water per day, which is eight (8 oz) glasses. Most fluids count toward this total, including some foods with high water content (such as watermelon).
- Drink your beverages slowly rather than drinking fast. Also avoid using a straw. Drinking fast and using a straw may introduce air into the digestive system, which can cause discomfort.
- Alcoholic and caffeinated drinks do not count because they dehydrate the body. Alcohol abstinence may not be required, but moderation is advised. Be sure to ask your health care provider about alcohol use.
- A good way to monitor adequate fluid intake is to check the color of your urine. It should be pale to clear.

If you're experiencing diarrhea you may be at risk for dehydration. Replacing fluids and electrolytes is necessary. Drinking more water is usually effective for rehydrating the body.

Rehydration drinks such as Pedialyte® and Gatorade™ may be helpful for replacing lost fluids and electrolytes during times when diarrhea is severe. Excess sugar can cause more diarrhea due to the pull of water into the gut. Fruit juices used for rehydration and replenishing of vitamins and electrolytes may need to be diluted.



Carefully Select and Prepare Sources of Fiber

Fiber is an essential component of our diets. The Academy of Nutrition and Dietetics recommends 25 grams of fiber a day for women and 38 grams of fiber a day for men. Children should consume the number of grams equal to their age plus 5.

Fiber can sometimes be problematic for people with IBD, especially during disease flares. As stated earlier, soluble and insoluble fiber exist in foods (page 12). It is beneficial to consume more soluble fiber during a disease flare and lessen the intake of insoluble fiber.

Below are some tips for making food selection easier and minimizing the negative effects of certain fibers when the gut is inflamed.



Eat a Variety of Vegetables and Fruits

Vegetables and fruits are important sources of many nutrients and are essential to a healthy diet. Tolerance for vegetables and fruits varies among people with IBD. To ease discomfort during a disease flare, select vegetables and fruits that are easier to digest, such as well-cooked asparagus and potatoes, applesauce and melons. Remove the skin (the insoluble fiber part) and avoid the seeds.

Eat cooked vegetables rather than raw vegetables during a flare. Steaming vegetables until they are very soft preserves more of the nutrients than boiling them. Avoid vegetables with a tough skin. Some vegetables, like broccoli, cauliflower and Brussels sprouts, have a tendency to produce gas. It is best to avoid eating these if gas is a problem for you. Vegetable stock is a good source of nutrients that can be used for making soup, or added to rice or pasta. It is also a good liquid to use when cooking vegetables.

During a disease flare, soft fleshy fruits are well tolerated. Avoid skins and seeds and cook fruits when diarrhea is severe.



Select the Right Grains

Grains include wheat, rice, oats, cornmeal, barley and others. These grains are used to make products such as bread, pasta, oatmeal and breakfast cereal. In their natural form, grains have three components: bran, germ and endosperm. Whole grain products contain all three. Refined grains have been milled to remove the bran and germ, and they have a finer texture.

Grains are important sources of fiber, B vitamins and minerals (such as iron, magnesium and selenium). Nutritionists often recommend eating whole grain products because the process of refining grains removes some of the iron and B vitamins. But this is not always advisable for people with IBD because the insoluble fiber in the bran and germ may be irritating, especially during a flare.

During a disease flare, foods containing refined grains are generally easier to digest. Most refined grain products are enriched with B vitamins and iron, so you won't be missing these nutrients. Avoid bread and other grain products that contain seeds and nuts. Potato bread, French bread and sourdough are all good choices.

If you reduce your fiber intake during a flare, slowly increase the amount you consume when you are feeling better. Start by adding only a few grams per week.



Choose the Best Sources of Protein

Meat, seafood, beans, eggs, nuts and seeds are excellent sources of protein. They also provide B vitamins (niacin, thiamin, riboflavin

and B6), vitamin E, iron, zinc, magnesium and other nutrients.

Animal proteins (fish, beef, pork, poultry, eggs, and dairy) contain all the essential amino acids. Vegan sources of protein may not contain all amino acids but can be eaten in combination to provide all necessary protein. Other sources of protein include soy-based products, legumes and grains. Eat a variety of protein sources to ensure that you consume all the required amino acids.

People with IBD may need to eat increased amounts of protein when experiencing inflammation or when recovering from inflammation. In general, it's best to choose lean or low-fat cuts of meat and poultry. This is especially important during disease flares. This is because excess fat can lead to poor absorption and may worsen symptoms. Before cooking meat, trim away any visible fat. Eat fish, especially oily fish that contains omega-3 fatty acids, like tuna and salmon, and try smooth nut butters.



Get Enough Calcium

Calcium consumption is especially important for people with IBD. The recommended dietary allowance (RDA) of calcium is 1,000 mg per day for men and women ages 19 to 50 and men ages 51 to 70. It is 1,200 mg per day for women over age 51 and men over age 70. Children ages 4 to 8 should consume 800 to 1,000 mg per day, and children ages 9 to 18 should consume 1,200 to 1,500 mg per day.

To meet your calcium needs without a supplement, aim to eat at least three to four servings of calcium-rich foods daily. Sources of calcium include milk (regular, lactose-free, calcium-fortified almond or soy), yogurt, cheese, calcium-fortified orange juice and canned fish.

Dark green vegetables contain less calcium but they have great nutritional value and are excellent sources of folic acid. If you aren't getting the recommended amount of calcium in your diet, you can add a calcium supplement.

Maintain Adequate Caloric Intake

Meeting the body's calorie and protein demands is essential to prevent tissue wasting and weight loss. However, getting adequate calories can be challenging when appetite loss is a symptom of IBD.

Caloric needs may increase during times of stress, including inflammation, fever and diarrhea. If your weight begins to drop, try adding about 250 to 500 calories more per day, and talk to your health care provider for additional strategies to maintain a healthy weight.

Other Tips:

Food Journal

Because each person with IBD will have different reactions to foods and these may vary over time, it is helpful to maintain a food journal to keep track of what you eat. The journal can help you identify foods you are unable to tolerate during a flare. It can also reveal whether your diet is providing an adequate supply of nutrients. Tracking foods along with symptoms will be helpful when speaking to your physician or registered dietitian. A sample food journal is on [page 43](#). You can also use our interactive tracker tool, GI Buddy (www.ccfa.org/gibuddy), online or as a mobile app.

Managing Social Eating

A lot of social activities involve food and drink. Knowing that you have to go out to dinner or to a social event involving food can be a source of worry for some people with IBD.

There are ways to get through dining out and "social eating."

Recommendations on Foods to Eat and Avoid During Flares or When Strictures Are Present*

Food Group	Recommended Foods	Foods to Avoid
Vegetables	<ul style="list-style-type: none"> ■ Vegetables that are easier to digest (e.g., asparagus, potatoes) ■ Cooked, pureed or peeled vegetables ■ Vegetable stock added to rice or pasta for additional nutrients 	<ul style="list-style-type: none"> ■ Vegetables that are gas-producing (e.g., broccoli, Brussels sprouts) ■ Vegetables that have a tough skin
Fruits	<ul style="list-style-type: none"> ■ Fruits that are easier to digest and have less insoluble fiber (e.g., applesauce, melons) ■ Cooked, pureed, canned or peeled fruits 	<ul style="list-style-type: none"> ■ Fruits with a high fiber content (e.g., oranges, dried fruit)
Grains	<ul style="list-style-type: none"> ■ Grains that are more refined with less insoluble fiber ■ Oatmeal, potato, sourdough and French breads 	<ul style="list-style-type: none"> ■ Grains with seeds and nuts
Protein	<ul style="list-style-type: none"> ■ Lean sources of protein (e.g., fish, chicken, eggs and tofu) ■ Smooth nut butters (peanut, almond, cashew) 	<ul style="list-style-type: none"> ■ Whole seeds and nuts ■ Fatty, fried or highly processed meats

*This is a sample list. Your individual needs may be different.

There is no “IBD-safe” menu but there are techniques and strategies to use to make dining out a positive experience.

Some tips to keep in mind include:

- Don't go out feeling too hungry. You may not make the best food choices as you will be driven by hunger and the desire to feel full.
- Don't be afraid to make special requests. Many restaurants will alter how a dish is prepared.
- Call ahead if you have specific questions or review the menu ahead of time online. This way, you can identify potential food problems and avoid feeling hurried by the server when reviewing options.
- Eat smaller portions—perhaps an appetizer or a half-size portion. If you don't like the food, you haven't wasted money and more can always be ordered.
- When in doubt, keep it simple. Go for boiled, grilled, broiled, steamed, poached or sautéed options, and limit sauces and spices.
- When going to a party, bring an item you know you can eat and bring enough for the group.
- Know where the restrooms are located before you check in to the social event.
- Ask your doctor about products that help to manage or reduce symptoms, including anti-diarrheal medications, antispasmodics or lactase supplements.
- Use an adult diaper or protective garments and carry a change of garments in your bag, backpack or car.

If you find yourself avoiding social situations or struggling with eating or the thought of eating, tell your health care provider, family, friend or speak with a counselor or other mental health professional that can help you better manage eating and IBD.



Vitamin and Mineral Supplementation

In general, most vitamins, minerals and other nutrients can be obtained from food.

However, many people with IBD take supplements to make up for a deficiency or to prevent a deficiency from occurring. This is because IBD, as previously discussed, can prevent a person from maintaining adequate nutrition.

Before you rush to get vitamins and other dietary supplements, keep the following in mind:

- Vitamin and mineral supplements can cause GI symptoms even for people who don't have a digestive disease—especially in pill form. Consider taking a liquid or powder formula.

- Check the supplement's label to see if it contains lactose, artificial colors, sugar alcohol or preservatives. Many people with GI problems are sensitive to even small quantities of these substances, so become a savvy consumer before you stock up.
- The United States Pharmacopeia is a scientific nonprofit organization that sets standards for the quality, purity and potency of dietary supplements. Look for the USP symbol on bottles and packages. This symbolizes that the supplement meets the organization's standards.
- Never take vitamins and minerals on an empty stomach.
- Discuss all over-the-counter medications, dietary supplements, herbal formulas and other treatments you take or are considering taking with your doctor and other members of your health care team.

Supplements That May Be Needed

In addition to the information below, a guide to dietary supplements can be found on [page 30](#).

Calcium supplements are recommended for patients taking corticosteroid medications, those who are not getting enough calcium in their diet and those who have bone loss as shown on a bone density test. For most IBD patients, a daily calcium supplement of 1,200 to 1,500 mg is recommended. This should be taken in two to three doses of 500 to 600 mg of calcium. This is all your body can absorb at any one time. Vitamin D is essential for the absorption of calcium.

Vitamin D: This vitamin is essential for good bone formation and for the processing of calcium. The recommended daily allowance for vitamin D depends on age and ranges from 400–600 international units (IU) per day. Vitamin D is contained in many foods, but it can also be obtained through sun exposure. Vitamin D deficiency is one of the most common nutrition-

al deficiencies in people with Crohn's disease. Therefore, a supplement of 1000 IU daily is often recommended, but your health care provider can help determine your supplementation need based on the level of deficiency.

Folic acid: Some drugs used to treat IBD, such as sulfasalazine and methotrexate, interfere with the absorption of folic acid, one of the B vitamins. IBD patients who take sulfasalazine or methotrexate are advised to take a folic acid supplement of 800 mcg to 1 mg per day.

All pregnant women, including women with IBD, are advised to take folic acid supplements (at least 400 mcg daily) to prevent spina bifida and other neural tube defects in infants. Folic acid is particularly important for pregnant women with IBD who take sulfasalazine. Pregnant women taking sulfasalazine should take 2 mg per day.

Vitamin B12: Vitamin B12 is absorbed in the ileum. People with Crohn's disease that affects the ileum and those who have had surgery to remove 20 inches or more of the ileum may have vitamin B12 deficiency because they are unable to absorb enough of this vitamin from their diet. A blood test can measure the amount of vitamin B12 in the blood. A monthly subcutaneous injection or weekly nasal spray of vitamin B12 may be required for individuals who are deficient.

Iron: Blood loss from inflammation and ulceration of the intestines can occur in some people with IBD. Blood loss can cause anemia. Blood iron levels can be measured with a simple test. If they are found to be too low, iron supplements may be given. Because excess iron can be toxic to the liver, it is important to determine that an iron deficiency is present before taking a supplement.

Iron supplements can be bought without a prescription. Before buying an iron supplement, discuss the appropriate dose with your doctor and ask your doctor what form of iron supplement you should take. The different forms of iron supplements differ in the degree to which they are absorbed by the body.

Iron supplements should be taken in two or three doses during the day. Liquid iron preparations are more easily absorbed and less likely to cause constipation than pills. Iron can also be given intravenously if oral iron is not well tolerated.

Zinc: Patients with extensive disease in their small intestine are at risk for zinc deficiency. People who develop short bowel syndrome (a condition that sometimes occurs after a significant portion of the small intestine has been removed or damaged) are also at risk. Symptoms of zinc deficiency include a rash, changes in taste, smell and sight, and difficulty with wound healing. If a deficiency is suspected, your physician can advise you on the proper amount needed for replacement.

Vitamins A, D, E and K: Vitamins A, D, E and K are fat-soluble vitamins. Patients with malabsorption may be at risk for fat-soluble vitamin deficiency. Your health care provider can help determine if you need additional supplementation of these vitamins.

Omega-3 fatty acids: These are essential fats found in fatty fish, flaxseed, walnuts and fortified products. Including these foods provides valuable nutrients. There is no evidence to date that omega-3 fatty acids significantly reduce

inflammation of IBD to improve symptoms, but some patients choose to take a fish oil supplement. These supplements should be stopped before procedures/surgery because they may prolong bleeding time.

Probiotics: Probiotics are microorganisms contained in foods or supplements that provide beneficial health effects. Yogurt, which contains live bacteria, is an example of a probiotic food. Under normal circumstances, so-called “good” bacteria are present in the intestines where they aid digestion and help protect the intestine from harmful bacteria. Some studies show that in people with IBD, there are fewer “good” bacteria. The idea behind taking probiotic supplements and eating foods containing live bacteria is to restore the normal balance of microorganisms in the intestines. Lactobacillus preparations and live-culture yogurt are recommended for everyone. Some preparations of probiotics have been evaluated for specific types of IBD. Your health care provider may help you decide if a specific probiotic is needed.

Guide to Dietary Supplements

What follows is a list of nutrients, and their best sources, that can become deficient in Crohn's disease or ulcerative colitis as a result of medication, surgical treatment or intestinal inflammation itself.

Crohn's Disease

■ Vitamin B12

Mollusks (especially clams and mussels), beef liver, fortified breakfast cereals, sockeye salmon, trout, oysters, crab, pork

■ Folate (Folic acid)

Legumes, citrus fruits and juices, whole grains, wheat bran, dark leafy greens, rice, vegetables, poultry, pork, shellfish, liver

■ Vitamin A

Beef liver, carrots, sweet potatoes, spinach, cantaloupe, kale, red peppers, broccoli, mangos, apricots, black-eyed peas

■ Vitamin D

Butter, eggs, fish oils, fortified milk, beef or chicken liver, some fortified cereals, salmon, tuna

■ Vitamin E

Wheat germ oil, almonds, safflower oil, corn oil, peanuts, sunflower seeds

■ Vitamin K

Cabbage, cauliflower, spinach and other green leafy vegetables, cereals, soybeans

■ Magnesium

Halibut, nuts and nut butters, cereals, soybeans, spinach, potatoes (with skin), black-eyed peas, almonds, salmon

■ Calcium

Low-fat milk products (if you can tolerate them), kale, collard greens, bok choy, broccoli, oranges, salmon, shrimp, molasses, calcium-fortified foods (check labels)

■ Iron

Soybeans, chicken liver, oysters, grits, beef, clams, poultry, dried beans, dried fruits, egg yolks, whole grains, iron-fortified cereals, dark green leafy vegetables, almonds

■ Potassium

Sweet potatoes, potatoes, tomatoes and tomato products, beet greens, yogurt, molasses, white beans, soybeans, prune juice, bananas, winter squash

■ Zinc

Red meat, poultry (dark meat), liver, shellfish, cheese (not processed), legumes, bran, nuts, green peas, whole grains

Ulcerative Colitis

It is recommended that people with ulcerative colitis follow the supplementation guidelines for Crohn's disease, with an emphasis on the following nutrients ([see the Crohn's disease list for best food sources](#)):

■ Folate

■ Magnesium

■ Calcium

■ Potassium

■ Iron

Source: "Take Charge," Crohn's & Colitis Foundation of America, 2008: A Quick Guide to Dietary Supplements, pg. 33.

Nutritional Support Therapy

For some people with IBD, it may be especially difficult to take in enough calories and nutrients.

If the normal method of eating food by the mouth is not allowing enough nutrients to be absorbed, than other methods of getting nutrients must be used. These methods include enteral nutrition and parenteral nutrition delivery. Some people will use a combination of these methods over time.

Bowel rest may also be necessary as part of the treatment for severe Crohn's disease and ulcerative colitis. For severe Crohn's disease, bowel rest, which includes no food by mouth except at times during enteral nutrition in the elemental (amino acid based) and polymeric forms, may help reduce inflammation and is used in combination with medical therapy. Amino acids are the simplest forms of proteins that are needed for growth and development.

Enteral Nutrition

This form of nutrition can be taken by mouth or delivered through a feeding tube that is inserted directly into the stomach or small intestine. "Enteral" means "by way of the intestine." A special liquid food mixture is used that contains proteins, carbohydrates (sugars), fats, vitamins and minerals. Intake of oral and/or enteral nutrition can help preserve or improve the absorption ability of the remaining small intestine.

This type of liquid nutrition is particularly helpful for children with IBD to ensure adequate

nutrition when appetite is poor and growth is of concern. Certain types of enteral nutrition, such as elemental formulas, can decrease inflammation in Crohn's disease. When extra nutrient-rich calories are needed, supplemental nutrition may also be obtained by formulas that contain a balance of protein, carbohydrates, fat and vitamins. These include nutritional formulas such as Ensure® and Boost®.



Parenteral nutrition

In situations when the GI tract cannot be used, feeding is accomplished through a thin intravenous (IV) tube called a catheter. It is surgically inserted directly into a large vein in the chest, neck or arm. This is called parenteral nutrition (PN). “Parenteral” means “outside of the digestive system.” The liquid nutrients are delivered directly into the bloodstream, instead of through the stomach or small intestine. The liquid mixture contains all the necessary proteins, carbohydrates, sugars, fats, vitamins, minerals and other nutrients.

Parenteral nutrition may be needed when a flare is too severe, medical therapy alone is not enough and bowel rest is needed. This form of nutrition may also be needed in Crohn's disease patients who are severely malnourished or who have short bowel syndrome.

To learn more about nutritional support therapy, view our fact sheet on short bowel syndrome and Crohn's disease at online.ccfa.org/shortbowelsyndrome.

Impact of Surgery on Diet and Nutrition

Some people with ulcerative colitis or Crohn's disease require surgery due to complications or because they no longer respond to their prescribed medications.

Depending on the type and extent of the surgery, dietary changes, restrictions or other considerations may be necessary.

Types of surgeries are discussed in the “Surgery for Crohn’s Disease and Ulcerative Colitis” brochure at online.cdfa.org/surgery-brochure. The impact of these surgeries on diet and nutrition depends on many factors. According to the United Ostomy Association of America (UOAA), there are a few general dietary guidelines to keep in mind following ostomy surgery, including:

- A low-fiber diet is usually recommended immediately after surgery.
- A variety of foods from each of the food groups should be consumed to optimize nutrition.
- Over time, slowly add new foods to your diet to see how each food item is tolerated by your body.
- Eat at regular intervals to avoid watery stools and gas.

To view the full UOAA Diet and Nutrition Guide, visit www.ostomy.org.

Managing Diet & Nutrition During a Flare

During the reappearance of Crohn's disease or ulcerative colitis symptoms (a flareup), what you eat can impact your symptoms.

There may be times when modifying your diet can be helpful, particularly during a flare. Some diets may be recommended at different times by your physician, including:

- Low-salt diet—Used during corticosteroid therapy to reduce water retention
- Low-fiber diet—Used to avoid stimulating bowel movements and abdominal cramps
- Low-fat diet—Typically recommended during a flare when fat absorption may become an issue
- Lactose-free diet—For those who have an intolerance to dairy products
- High-caloric diet—For those who experience weight loss or growth delay

Check with your doctor to see if any of these modified diets is appropriate for your situation.

Sample Meal Plans and Recipes

On [page 36](#) are sample meal plans that meet USDA general recommendations for healthy eating. Keep in mind that your individual needs may be different based on such things as your disease symptoms, nutritional deficiencies or food intolerances.

If you are interested in trying something new to eat, try one of the recipes found at the end of the brochure on the back of the food journal. Be sure to adjust the recipes based on your individual dietary requirement.

Sample Meal Plan 1

Breakfast:

- 1/4 cup egg substitute (= 1 ounce of protein) scrambled with 1.5 ounces low-fat cheddar cheese (= 1 cup of dairy)
- 2 slices potato bread (= 2 ounces equivalent of grains)
- 1 cup watermelon (= 1 cup of fruit)

Snack:

- 1 cup (8 ounces) plain Greek yogurt (= 1 cup of dairy) with 1/2 cup diced cantaloupe (= 1/2 cup fruit)

Lunch:

- 3 ounces (= 3 ounces equivalent protein) cooked lean ground turkey divided on 2 (6-inch) flour tortillas (= 2 ounces equivalent of grains) topped with 1 medium avocado (= 3 teaspoons of oil), 2 pieces Bibb lettuce (= 1/2 cup of vegetables) and 1/2 cup mild salsa (as tolerated) (= 1/2 cup of vegetables)

Snack:

- 1 large banana (= 1 cup of fruit) spread with 1 Tbsp creamy all-natural nut butter (= 2 teaspoons of oil)

Dinner:

- 1 cup cooked penne pasta (= 2 ounces equivalent of grains) with 1 Tbsp extra virgin olive oil (= 3 teaspoons of oil), fresh herbs, 1 cup well-cooked spinach (= 1 cup of vegetables) and 3 ounces (= 3 ounces protein) cooked shrimp
- 1 cup unsweetened calcium fortified soy milk (= 1 cup dairy). Cow's milk or other milk can be used.

Nutrition Facts	Sample Meal Plan 1
Calories:	2,123
Total Fat:	62 grams
Saturated Fat:	13 grams
Protein:	151 grams
Carbohydrates:	251 grams
Total Sugars:	64 grams
Fiber:	31 grams

Sample Meal Plan 2

Breakfast:

- 1/2 cup cooked oatmeal (= 1 ounce of grains) with 1 cup calcium-fortified unsweetened soy milk (or almond, rice or regular milk) (= 1 cup of dairy)
- 1 Tbsp ground flaxseed (= 3 teaspoons of oil)
- Add cinnamon and 1/2 cup natural applesauce (= 1/2 cup of fruit)

Snack:

- 2 ounces pita chips (= 1 ounce of grain) with 1/4 cup hummus (= 2 ounces of protein)

Lunch:

- 2 ounces sliced chicken breast (= 2 ounces of protein) with 1 ounce of low-fat cheese (= 1/2 cup of dairy)
- 2 slices oatmeal bread (= 2 ounces of grains)
- 1 cup pureed vegetable soup (= 1 cup of vegetables)

Snack:

- 1/2 cup (= 1 ounce equivalent of grains) Cheerios with 1/2 cup milk of choice (= 1/2 cup of dairy)

Dinner:

- 3 ounces roasted salmon with 1 Tbsp fresh lemon juice, 1 Tbsp butter (= 3 teaspoons of oil) with fresh dill
- 1 ½ cups well-cooked asparagus (= 1.5 cups of vegetables)
- 1 cup cooked white rice (= 1 ounce equivalent of grains)
- 1 cup calcium-fortified unsweetened soy or other milk (= 1 cup of dairy)
- 1 cup blueberries (= 1 cup of fruit)

Nutrition Facts	Sample Meal Plan 2
Calories:	1,873
Total Fat:	63 grams
Saturated Fat:	14 grams
Protein:	91 grams
Carbohydrates:	248 grams
Total Sugar:	64 grams
Fiber:	38 grams

Questions to ask your health care provider

It is only natural that you will have some questions about how IBD can affect your diet and nutrition. The following are some of the questions you may want to ask your doctor, dietitian or health care provider:

- Do I have any nutritional deficiencies?
- What tests are needed to evaluate my nutritional status?
- How often should these tests be performed?
- Do I need to take vitamins and minerals? Which ones?
- Will any of my current medications affect my nutrition?

- How do I know if I am lactose intolerant?
- Do I have stricture(s) that require a special diet?
- Now that I'm in remission, can I change my diet?
- Is it safe to drink alcoholic beverages?
- Should I get help from a dietitian? Can you recommend one?

Final Words About Diet, Nutrition and IBD

Now that you know a little more about diet, nutrition and IBD, you can begin or continue the process of managing your disease by following your health care team's recommendations.

It is important to remember that no specific diet can control IBD, but changes to what you eat can help reduce your symptoms. Following the tips below throughout your IBD journey may be helpful.

- In addition to medical therapy, make healthy food choices to help reduce symptoms
- It may be helpful to modify your diet during a flare or if strictures are present
- Replace nutritional deficiencies

- Maintain a well balanced and nutrient-rich diet
- Use helpful tools such as a food journal or GI Buddy, www.ccfa.org/gibuddy, to help you keep track of your diet and symptoms

If you need help or have questions, contact CCFA's Irwin M. and Suzanne R. Rosenthal IBD Resource Center (IBD Help Center) by email at info@ccfa.org, phone at (888) 694-8872 or online chat at www.ccfa.org.

Diet Research

CCFA has played a major role in the advancement of IBD research.

Since 1967, CCFA has invested more than \$200 million in IBD research. Over the years, CCFA has supported many research studies involving diet and nutrition and how they may affect or interact with IBD.

Through CCFA's Partners research program, CCFA was able to survey 4,001 patients with Crohn's disease, 2,156 with ulcerative colitis, 206 with a UC pouch and 362 CD-ostomy patients about their dietary habits and patterns. In the study, "Dietary Patterns and Self-Reported Associations of Diet with Symptoms of Inflammatory Bowel Disease," by Cohen et al. (2012), yogurt, white rice and bananas were more frequently reported to improve symptoms whereas non-leafy vegetables, spicy foods, fruits, 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 more information about these findings in the "Results" section at www.ccfapartners.org.

Enclosed Resources

Glossary ([click here](#))

Food Journal ([click here](#))

Recipes ([click here](#))

Other resources:

- American Society of Parenteral & Enteral Nutrition – www.nutritioncare.org
- Academy of Nutrition & Dietetics – www.eatright.org
- Find a registered dietitian – www.eatright.org/programs/rdfinder
- The American Association of Nutritional Consultants – www.aanc.net
- CCFA Community Forum – Diet Forum – www.ccfacommunity.org
- CCFA GI Buddy mobile application – www.ccfa.org/gibuddy
- CCFA “I’ll Be Determined” – Diet Module – www.ibdetermined.org
- CCFA Website – www.ccfa.org
- USDA foods for wellness information – www.choosemyplate.gov
- United Ostomy Associations of America – www.ostomy.org

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Glossary

Anemia: A disorder of the blood where there is not enough red blood cells. Common causes include iron deficiency, vitamin deficiency and chronic inflammation and other diseases

Bile acid: Present in the digestive track, these agents can prevent stimulation of the colon, slow down the passage of stool and eliminate cholesterol from the body

Celiac disease: A digestive disease. People with this disease cannot tolerate a protein called gluten, which is contained in wheat, rye and barley.

Constipation: Bowel movements that are infrequent and hard to pass

Dehydration: Excessive loss of water from the body

Diarrhea: Passage of excessively frequent or excessively liquid stools

Electrolytes: Minerals, including sodium, potassium and magnesium, that affect the amount of water in the body, acidity in the blood (pH level), muscle function and other processes. Electrolytes are lost through sweat and must be replaced to help prevent dehydration

Fistula: An abnormal connection or passageway between two organs that normally do not connect

GI tract: Short for gastrointestinal tract

Ileum: The lower portion of the small intestine

Lactobacillus: A healthy lactic acid bacteria (probiotic)

Lactose: A slightly sweet sugar. Commercial lactose is obtained from whey, a liquid by-product of cheese. Many people cannot digest

lactose because they lack enzymes needed to digest simpler sugars

Large intestine: Also known as the colon. Its primary function is to absorb water and get rid of solid waste

Malabsorption: Inability to sufficiently break down food and nutrients to be carried throughout the blood stream

The Maker's Diet: This diet focuses on four components of total health—physical, mental, spiritual and emotional. Recommended foods are unprocessed, unrefined and untreated with pesticides or hormones

Mucus membranes: Cell linings of the intestines and other organs involved in absorption and secretion

Osteoporosis: Loss of bone density, causing skeletal weakness

Small intestine: Connects the stomach and large intestine; absorbs nutrients

Soluble: Ability to dissolve in water

Specific Carbohydrate Diet™ (SCD): This diet limits poorly digestible carbohydrates to lessen symptoms of gas, cramps and diarrhea. The diet consists mainly of meats, vegetables, oils and honey, and excludes grains and most dairy products

Supplementation: To add to, increase, or make up for a deficiency

Stricture: A narrowing of a section of the intestine caused by scarring. This can lead to an intestinal blockage. Nausea and vomiting or constipation may be a sign of a stricture

About CCFA

Founded in 1967, the Crohn's & Colitis Foundation of America (CCFA) is a nonprofit, volunteer-driven organization dedicated to finding a cure for Crohn's disease and ulcerative colitis. Today, the organization has grown to 40 local chapters, with more than \$200 million invested in research for a cure and improved treatments. This funding has enabled many groundbreaking treatments, improved the quality of care for individuals with these conditions and brought hope to countless lives. But there's still plenty of work left to do.

We can help! Contact us at:

888.MY.GUT.PAIN

(888.694.8872)

info@ccfa.org



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The Crohn's & Colitis Foundation of America is a nonprofit organization that relies on the generosity of private contributions to advance its mission to cure Crohn's disease and ulcerative colitis, and to improve the quality of life of children and adults affected by these diseases.

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Recipes

Try one of our IBD-friendly recipes. Be sure to make substitutions or eliminate ingredients that worsen symptoms for a flare-up for your particular case.

1. Sweet Potato Pumpkin Pie

Although pie is often thought of as not being a healthy food, this pie, made with sweet potato and pumpkin, is a great way to get kids to eat their vegetables and is gut friendly. Extremely rich in vitamin A, a critical antioxidant, this pie is nutrient dense and delicious. You may serve it as a side dish or a dessert.

Ingredients

- 1 premade pie crust
- 2 whole sweet potatoes cooked
- ¾ cup pumpkin puree (canned is fine)
- 2 Tbsp butter
- ½ cup Greek yogurt
- ½ cup coconut milk (refrigerated kind)
- 2 whole eggs
- 2 teaspoons cinnamon
- ½ cup brown sugar

Directions

In a food processor, puree the sweet potato when cool. Add pumpkin, butter, yogurt, coconut milk and eggs. Mix well then add brown sugar and cinnamon. Place in prepared pie crust and bake at 350 degrees Fahrenheit for 35 minutes.

Nutrition Facts	Sweet Potato Pumpkin Pie
Number of Servings:	8
Serving Size:	1/8 of pie
Calories:	300
Calories from Fat:	130
Total Fat:	15 grams
Cholesterol:	55 mg
Sodium:	170 mg
Total Carbohydrates:	39 grams
Dietary Fiber:	3 grams
Sugars:	18 grams
Protein:	5 grams
Vitamin A:	170%
Vitamin C:	4%
Calcium:	6%
Iron:	8%

2. Wild Salmon with Spinach, Olives and Shitake Mushrooms

Wild salmon is a very rich source of omega-3 fatty acids. These fatty acids have been shown to help reduce the inflammatory response and aid the gut in healing. Adding nutrient-rich spinach for vitamin A content, as well as olives and mushrooms, provides a highly digestible, antioxidant, rich meal.

Ingredients

- 4 4-ounce pieces wild salmon with skin removed
- 2 Tbsp butter, unsalted
- 2 Tbsp olive oil, extra virgin
- Flour with salt and pepper for dredging
- ¾ cup vegetable or chicken broth (low sodium)
- ¾ cup (sweet) Marsala cooking wine
- 1 pound baby spinach (washed and stems removed)
- 6-ounce can sliced pitted black olives
- ½ pound cleaned, dried and sliced shitake mushrooms
- Salt and pepper to taste

Directions

Wash and dry salmon, then dredge in seasoned flour. Heat a large sauté pan and add butter and olive oil. When melted, add salmon to hot pan and cook on each side for 2 minutes (until slightly brown). Add broth and Marsala wine to pan then cover and cook for 5 minutes. Add spinach, olives and shitake mushrooms to pan and cook 5 more minutes. Season with salt and pepper and serve while hot.

Nutrition Facts	Wild Salmon
Number of Servings:	4
Serving Size:	4 ounces
Calories:	460
Calories from Fat:	220
Total Fat:	25 grams
Cholesterol:	80 mg
Sodium:	860 mg
Total Carbohydrates:	26 grams
Dietary Fiber:	9 grams
Sugars:	7 grams
Protein:	28 grams
Vitamin A:	90%
Vitamin C:	25%
Calcium:	15%
Iron:	35%

3. Crispy Chicken Breast Nuggets

Many kids and their parents love chicken or fish nuggets. Chicken and fish are both sources of protein.

Ingredients

- 1 pound of skinless/boneless chicken breast
- 2 whole eggs, beaten
- ½ cup fresh, white bread crumbs**
- Salt and pepper to taste
- ½ teaspoon Italian seasoning, optional
- ¼ teaspoon garlic powder, optional
- ¾ cup rice crispy cereal (or unfrosted corn flakes), crushed

Directions

Cut chicken into strips or bite-size chunks. In a mixing bowl, add bread crumbs, salt, pepper, Italian seasoning and garlic powder. Working in batches, soak chicken in egg wash just enough to moisten. Dip chicken in bread crumbs. Dip chicken again in egg wash. Dip chicken in third bowl of crushed cereal. Spray baking sheet with cooking spray or line sheet with parchment paper. Lay chicken in single layer on baking sheet. Bake approximately 400 degrees Fahrenheit for 15–20 minutes or until done and golden brown (flip halfway through cooking time).

** Fresh bread crumbs—brush bread with olive oil and toast. Puree bread in food processor or blender. A high-fiber bread can be used when not in a flare.

Nutrition Facts	Chicken Nuggets
Number of Servings:	4
Serving Size:	4 ounces
Calories:	190
Calories from Fat:	45
Total Fat:	5 grams
Cholesterol:	155 mg
Sodium:	140 mg
Total Carbohydrates:	7 grams
Dietary Fiber:	0 grams
Sugars:	1 gram
Protein:	27 grams
Vitamin A:	8%
Vitamin C:	4%
Calcium:	4%
Iron:	15%