

Food for Thought: Nutrition & IBD

Presenters:

Millie Long, MD, MPH
Lisa Cimperman, MS, RD, LD
Joel Rosh, MD (Q&A only)

Operator:

Hello everyone. The program will now begin.

Laura Wingate:

Hello everyone. I'm Laura Wingate, Senior Director of Field and National Program for the Crohn's and Colitis Foundation of America. On behalf of the foundation, welcome and thank you for attending today's program. This program is supported by a sponsorship from Shire.

I hope that all of our webcast participants can see the title slide and hear me ok. For optimal viewing and participation, please disable your pop-up blockers. If you would like to view the presentation in full screen, click the Full Screen button in the lower right-hand corner of your screen. Press the Escape key on your keyboard to return to the original view.

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Thanks to everyone who submitted questions in advance of the program. After the presentation, we will open up the program for your questions. We will take as many questions as time allows, from both our telephone and webcast participants. Webcast participants can ask questions at any time during the presentation. Click the green Q&A icon on the left-hand corner of your screen. Type your question in the opening area, and click Send to submit.

If we are not able to answer your question, our Information Resource Center can be reached Monday through Friday, 9 am to 5 pm Eastern time, by calling 888-694-8872 or by e-mailing info@ccfa.org.

We are very excited to be live tweeting this event. Join us [@ccfa](#), [#food4thought](#).

I would now like to turn the program over to Kimberly Frederick, Vice-President of Mission, for a brief message.

Kimberly Frederick:

Hi, everybody. This is Kim. I'm not going to take too much of your time because I know that many of you are so excited to hear from our thought leaders on nutrition. We have thousands of folks that are registered and ready to get started.

So I just have a few exciting announcements to share with you about CCFA. One, we recently received a four-star rating from Charity Navigator, an organization that evaluates non-profit. A four-star rating is the highest rating and means that we execute our mission in a physically responsible way. Just a little hint about how many people get into this category. Only 18% of the charities rated by Charity Navigator have received at least two consecutive four-star evaluations. We meet the standards of the Better Business Bureau Wise Giving Alliance.

The main reason we are so highly rated, and this is important for you all to know, is because we are prudent stewards of our donor's money. We're rigorous in our approach to funding research and we only fund the most promising research. We're continually monitoring our progress.

Speaking of research, I just wanted to share that this past year, we gathered the top IBD thought leaders from around the world to identify the priorities for research and talked about what resources were essential for moving our research from the lab to the patient's bedside. What we drafted was our master plan called *Challenges in IBD Research*. If you're interested, this document is available on our website and it's under the tab, "[About CCFA Research](#)." You can check it out and you can see where we're headed in terms of IBD research.

Just two other important events that are coming your way this spring. If you don't already know about it, we have our Take Steps National Walk Program that's starting later this month. There's still a lot of time for you to get involved. These walks are great because it's just family and friends who are living with the disease or who know someone who is living with the disease. It's a great way to be around people who are really trying to create awareness and raise money to find a cure. If you want to find out where your local walk is, just go to www.cctakesteps.org. We've got hundreds of walks going on around the United States and there's definitely one in your area.

Finally, one other exciting event that's happening this spring is our annual IBD Day on the Hill. This is CCFA's national legislative event. It's happening in Washington, DC on May 22-23. We have advocates from all over the country come together in DC to learn about our priorities, and then really storm the hill to meet with legislators to share how IBD has affected their lives. If this sounds interesting to you, send us an e-mail or call the IRC and we can share more about how to get involved with that event.

Thank you so much for joining today's call. I hope you enjoy the teleconference. We love getting your feedback. We'll send you a survey. We want to know what your thoughts are. We want to know what else you want to hear about. It helps us plan our future programs.

I'm going to turn it back to Laura now to introduce our outstanding faculty.

Laura Wingate:

Thank you, Kim.

I now have the pleasure of introducing our speakers for today's program. Dr. Millie Long is an Assistant Professor of Medicine in the Department of Medicine and Course Director for the Clinical Epidemiology Course at the University of North Carolina at Chapel Hill School of Medicine. Dr. Long's interests include research on prevention of complications in inflammatory bowel disease, women's health, and teaching clinical epidemiology.

Ms. Lisa Cimperman is a Clinical Dietitian in the Surgical Intensive Care Unit at the University Hospital Case Medical Center in Cleveland, Ohio. Ms. Cimperman has served as a guest lecturer at Case Western graduate level nutrition courses and speaks regularly at meetings of the Northeast Ohio Chapter of CCFA.

Dr. Joel Rosh will participate in our question and answer session. He is the Director of the Pediatric Gastroenterology Program at Goryeb Children's Hospital in Morristown, New Jersey and Associate Professor of Pediatrics at the University of Medicine and Dentistry of New Jersey. Dr. Rosh is widely published in the field of pediatric IBD with interests in safety and efficacy of medication.

Without further ado, I will now turn the program over to Dr. Long.

Dr. Long:

Thank you, Laura, for that great introduction. And thank you, everyone, for joining this call today.

The objectives of our discussion today will include describing the importance of diet and nutrition in inflammatory bowel diseases. We will review the effects of IBD and IBD medication on digestion, as well as nutrients. I'll also share some data on the role of diet in IBD development as well as relapse. We'll also explain special diets for inflammatory bowel disease.

Additionally, we'll discuss popular diets that are well known and well advertised in their role in inflammatory bowel disease. We'll review general healthy eating principles. We'll review some suggestions for diet modifications during a flare. And we'll also discuss eating outside your home at holidays and gatherings.

So clearly, there's a great deal of importance associated with diet, nutrition, and inflammatory bowel disease. These are important parts of your disease management. Diet is the actual food that is consumed, what you eat, whereas nutrition refers to properly absorbing food and staying healthy, or how you eat. Incorporating good nutrition into your diet is essential.

Why is diet important? Well, as many of you well know, we don't know exactly what causes inflammatory bowel diseases. But these diseases are thought to arise from a combination of genetic, immune system abnormalities, environmental exposures, and potentially, alteration in the bacteria that live within the gut. It's possible that diet plays a role in a couple of these factors.

Certainly, the food you eat can alter the bacteria that live within the small intestine and the colon. Also, diet can be a component of some of the environmental exposures that may incite disease. Therefore, it could play a role not only in disease development but in theory, also in disease relapse.

Why is it important? Eating can cause significant symptoms in patients with inflammatory bowel diseases. You all know this. Fear, lack of response, or dissatisfaction with current medical or surgical therapies can often lead to searching for alternatives or a natural, complementary option. Unfortunately, the role of diet is actually very complicated. There's no consistent evidence that any specific food or food type cause inflammatory bowel disease or cause flares of disease. But it is incredibly important, because when we asked you, people really feel that diet plays an important role.

For example, nearly 20% of patients feel that diet causes inflammatory bowel disease. Almost half believe that certain food can trigger flares. Nearly one-half of all patients with inflammatory bowel disease report that the disease itself often changes the pleasure of eating. And about two-thirds of patients report not eating certain food that they usually like in order to prevent flares. So we need to have more information to be able to inform these decisions for you.

In terms of the role of diet, again, there is no evidence that a specific diet causes or cures IBD. IBD is actually not related to food allergy. But certainly this symptom can be exacerbated by food intolerance. A proper diet may improve the symptoms of IBD through improving some of these intolerances. It can enable healing. It can also give a sense of control over inflammatory bowel disease management.

Importantly, diet should be individualized for each IBD patient, as many of the food intolerances that we'll talk about are very individualized and specific for each individual.

In terms of research, the studies on the relationship between diet, nutrition, and inflammatory bowel disease are limited. Most of these studies are actually quite small, resulting in anecdotal outcomes. What I mean by that is that they are stories of patients who did feel better with certain food type but it's unclear whether this is really applicable to a large population of patients.

Diet may have an impact on disease. But so far, our research has been inadequate to show how this takes place. In the research community, we have two hypotheses as to how diet may play a role. Diet can potentially be involved in immune system modifications and have effects directly there. Or, and we actually do know this with some recent work, that diet can change the gut bacteria. So it's possible that through that interaction, modifications can be made that could impact disease or disease management.

In terms of diet research, there has been a recent systematic review. What that means is that researchers went through the literature and looked for all of the studies that are associated with diet and development of inflammatory bowel disease and tried to determine, are there certain risk factors that people who developed disease potentially ate more of as compared to people who did not develop the disease?

What they found is that there were a few trends related to fat and meat. High intake of these components was associated with an increased risk of inflammatory bowel disease in general. In terms of fiber and fruits, high intake of these foods was actually associated with a reduced risk of Crohn's disease. When they looked specifically at vegetables, again, high intake was associated with a reduced risk of ulcerative colitis.

The take home point from this review is that there are some limitations. Most of these diet studies asked people with disease to think back on what they ate before they develop the disease. That's a lot harder than collecting these data prospectively and then looking to see if people develop the disease. Also, it may not be that it's the specific food but actually components that are common to this food that may have a role, and we still need to determine those components. Importantly, none of these studies in this review actually explored the role of diet on current disease activity, which is one of the reasons we're actually having this discussion today. These studies were more on initial development of disease.

There was a recent study that did look at food and flares. This is a study that I participated in, that used data from a very unique source. This is a study of members of the CCFA and other patients with

inflammatory bowel disease, to join an internet-based study called CCFA Partners. CCFA Partners has already enrolled over 12,000 individuals with inflammatory bowel disease.

Within the study, we asked food frequency questionnaires so that we can measure eating patterns of individuals with Crohn's and ulcerative colitis. Importantly, within the study, we also asked questions about whether they have flares of disease so we could potentially correlate food with flares of disease. We also asked open-ended questions about foods that improved or worsened the IBD symptoms.

When we evaluated those questions, we found that foods that more frequently improved symptoms are foods such as yogurt, rice, or bananas. Foods that worsened symptoms included things like non-leafy vegetables, spicy foods, fruits, nuts, leafy vegetables, fried foods, milk, red meat, soda, popcorn, dairy, alcohol, high-fiber foods, fatty foods, seeds, coffee, and beans.

Importantly, there are some limitations of this study as well. All of these data are self-reported. We didn't actually measure what people ate. Many of the symptoms that worsened could have been related to intolerances rather than actually inflammatory changes. But certainly, these data are intriguing and will lead the way for further research in this arena.

In terms of the principles of good nutrition, I think it's important to emphasize that nutrition will play a role in many facets of your disease management. Potentially, medications may be more effective with good nutrition. Healing, immunity, and energy levels may benefit. It may prevent or minimize gastrointestinal symptoms and normalize bowel functions.

The reason nutrition is important is that because of your disease, you are at risk of malnourishment. There are many factors that can contribute to malnourishment. They include a lack of appetite related to symptoms such as nausea or abdominal pain that can correlate with disease activity. Chronic disease itself can tend to increased caloric needs of the body. Poor digestion and absorption of nutrients, particularly in Crohn's disease, can contribute to malnutrition. And the consequences of certain IBD medications can waste particular nutrients. We'll touch on that during this presentation.

In terms of the digestive system itself, here's a brief orientation for everyone so we're all on the same page. Digestion is the process by which food is converted into substances that can be absorbed by the body. The body absorbs nutrients from food to function properly. Most of the absorption actually occurs in the small bowel or the ileum. Watery food residue and undigested secretions pass into the large intestine, or the colon, where water is reabsorbed. Solid undigested food mixes with bacteria living in the large intestine to form a bowel movement.

Unfortunately, IBD can affect many aspects of digestion. For those with ulcerative colitis, your small intestine actually works normally in terms of absorption. But the inflamed colon causes urgency and does not reabsorb water properly, resulting in diarrhea.

In Crohn's disease, the inflamed small intestine is less able to fully absorb the necessary nutrients and can contribute to malnutrition. Because that food is incompletely digested as it travels to the colon, you can actually also experience an increase in diarrhea.

In summary, when you think about all of these factors together, there are many things that contribute to an overall state of malnutrition: inadequate intake related to symptoms or food aversion, nausea, abdominal pain, and malabsorption due to active disease. For those of you that have had a surgical resection of bowel, that limits absorption in the small bowel. Diarrhea itself can cause significant GI losses, particularly of some nutrients. Vomiting itself does as well.

Some of the medications that we use to control inflammation in those with inflammatory bowel disease also are known to waste nutrients. For those on some particular medications, I listed a few here (prednisone, sulfasalazine, etc.) and review what specific supplementation maybe useful to overcome it. Certainly, because of the chronic disease and the higher metabolism, someone with a chronic disorder such as IBD can have some increased nutrient requirements. So when you put all of those factors together, it can often result in a malnourished patient.

That's why a team is very important to help with your management. This team should include not only a gastroenterologist but also a dietitian. This team can work together to identify factors associated with nutrient loss and recommend replacement. Optimizing nutrition can actually improve healing, particularly after surgery. Nutrition changes are complementary to medical therapies that treat the underlying inflammation, not an either/or phenomenon.

Unfortunately, there is limited access to dietitians specializing in IBD in some areas, and limited time in the gastroenterologist visit to address nutrition, which is one reason why we're glad you're here to work with us on this important topic.

As promised, in terms of nutrient deficiencies, I want to review some particular nutrient deficiencies that are disease-specific. Let's start with ulcerative colitis. Many patients with ulcerative colitis are on sulfasalazine, which is an anti-inflammatory medication. It's a very good medication. But one of the

nutrients that it wastes is folate. If you are on sulfasalazine as a treatment for ulcerative colitis, you should be taking a folate supplement as well.

Prednisone can reduce calcium stores. People can potentially have a reduced intake of vitamin D related to feeling poorly. If you're feeling poorly, you're not out in the sun, which can reduce the vitamin D stores as well. Magnesium is lost through diarrhea, and certainly it's one that can need replacement. There are other medications used in ulcerative colitis such as tacrolimus or cyclosporine that very specifically waste magnesium. If you're on these medications, you may require supplementation as well.

Many patients with inflammatory bowel disease will have blood (either visible or microscopic) in their stool. Whenever you're losing blood, you have the potential to have reduced iron stores. So it's reasonable to check. If iron is low, start on iron replacement as well.

Potassium is a nutrient that is also lost through vomiting and diarrhea and is something that can be replaced.

In regards to Crohn's disease, some of the nutrients are the same. There are some additional nutrients to be concerned about. Vitamin B12 is a major one. It really helps with energy state and fatigue. It's important in red blood cell formation. Individuals with severe inflammation or who've had surgery on the ileum (part of the small bowel) don't reabsorb B12 as they should and therefore B12 supplementation can be needed.

Vitamin A can be associated with upper GI tract involvement or resection. You can have fat malabsorption.

Again, as with ulcerative colitis, if you're on prednisone, calcium may need to be replaced. Vitamin D may need to be replaced, for the same reasons as with ulcerative colitis.

Zinc is another rare element that can be low in patients with Crohn's disease, particularly among individuals with significant diarrhea or those who have fistulas (abnormal connections between parts of the bowel or between the bowel and other areas). People who have had resections of the top part of the small bowel (jejunum) may also have low zinc levels.

Magnesium, iron, and potassium can also be low, for the same reasons as in ulcerative colitis. These are all nutrients based on your own individual state that may be reasonable to think about replacement.

In terms of research on nutrients, there have been some recent studies on the role of vitamin D in Crohn's disease. Interestingly, higher levels of vitamin D are associated with a reduced risk of development of Crohn's disease. In other words, it seems to be protective for Crohn's disease if people have an appropriate level. When you look at individuals with inflammatory bowel disease, vitamin D deficiency is very common, and it's independently associated with lower quality of life and greater disease activity.

There was one small randomized control trial in Europe that actually looked at oral vitamin D replacement. An appropriate replacement of vitamin D reduced the risk of relapse in Crohn's disease from 29% to 13%. While not statistically significant, it does appear to be an important trend that warrants further research.

Is there a special diet for inflammatory bowel disease? This is something I get asked a lot. And the simple answer is no. There are not special diets for IBD. However, based on your type of IBD, dietary modification can help with your ongoing symptoms.

As many of you know, there are several diets that have been advertised specifically for managing IBD. However, many of these claims are actually supported by small numbers of subjects, meaning that we don't know if the same effect would occur if a larger number of people were using the diet. Most have not been proven scientifically and benefits have not been seen in formal studies. So it's often best to talk to your doctor about your questions in regards to specific dietary interventions.

What I can tell you about special diets for IBD is that there are certain scenarios where an individualized diet can help with symptoms. Some of you may have had your doctor tell you to go on with elimination diet. This is a diet where you keep a food or symptom diary over several weeks. As various foods are eliminated, you can improve some symptoms related to food intolerances. You can see a direct correlation between your symptoms in your diary and certain foods that you eat.

Some of you may have been on a low-fiber or low-residue diet. This is a diet that minimizes the intake of foods that bulk and add residues to the stool, in particular raw fruits, vegetables, seeds, and nuts. I called it the "low-chunk diet" with my patients because you really don't want these chunky raw vegetables and fruits. I predominantly use this diet in patients who have strictures (a narrowing of the intestine). You can imagine that this bulk might get caught above that narrowing and cause significant symptoms.

Total bowel rest is another diet that can be used in inflammatory bowel disease. This provides a period of complete bowel rest during which patients are nourished with fluids delivered intravenously rather than

through oral intake. It may decrease inflammation and has been effective in Crohn's disease or in patients with fistulas over the short term.

An elemental diet is another diet that can be used. This diet limits carbohydrate intake through these microbes that might contribute to symptoms.

Another diet is the gluten-free diet. I get a lot of questions about the gluten-free diet. This is a diet that excludes grains that contain the protein gluten. It's used for those with co-existing disorders, such as celiac disease, which is an inability to process gluten. It's also been used in irritable bowel syndrome.

Interestingly, in the study of IBS, gluten can increase intestinal permeability, meaning the leakiness across the bowel. By avoiding gluten, IBS patients can have improved diarrhea symptoms. This is potentially most related to those who have some of the genetic markers for celiac disease without actually having overt celiac disease. In other words, a gluten-free diet is often used in co-existing disorders but not necessarily specifically for IBD.

So what are the key messages about diet? Diet cannot prevent IBD, unfortunately. It cannot provide sustainable disease control. Diet can help with symptoms while the disease is being treated in other ways. Diet should always be individualized based on which disease you have (Crohn's vs. UC), which part of the intestine is affected, what state you're in, and whether you have active disease or you're in clinical remission. Targeted nutrient support should be based on disease location or the medications that you are on.

Nutrition support therapy is something that can be added to your underlying healthy diet. Additional supplementation may be necessary during the disease course, particularly if you have weight loss, oral intake issues, prior surgery, an obstruction, or severe inflammation.

There are essentially three different forms of supplementation. There are liquid nutritional supplements. You've probably seen many of these available over the counter. Things like PediaSure®, Ensure®, BOOST®, or BOOST® Kid Essentials. There's also nutrition that's delivered through a tube, whether that tube goes through your nose and down into your stomach, or whether that tube is actually placed across your abdominal wall into the stomach. This nutrient-rich liquid formula can be administered through either of those accesses.

There's also parenteral nutrition, which is actually IV nutrition. This is when individuals have a catheter placed into a large vein in their system and they have direct nutrition delivered through the IV. It requires

specialized training and can have complications, including infectious complications from the IV itself, so it is something that is used very sparingly.

In terms of an overall picture of how IBD is managed through nutrition, IBD is treated through a variety of treatment approaches. Good nutrition does not replace conventional medical and surgical therapies for IBD, but instead can be complementary.

Other complementary approaches can help with symptom relief as well. Dietary modifications and supplementations, stress management, and exercise can work together with your traditional medical approach and improve your symptoms of inflammatory bowel disease.

At this point, I'd like to turn the program over to Lisa, who will discuss healthy eating with IBD.

Ms. Cimperman:

Thank you, Dr. Long. I'm Lisa Cimperman.

As Dr. Long has so clearly emphasized, no specific diet has been proven to control or cure the symptoms of inflammatory bowel disease. But certainly, a quick internet search shows that many options exist. In fact, there are many anecdotal stories and dramatic stories about diet curing IBD. Hopefully, we will help you better evaluate this information that's out there.

Many of you have probably heard about the specific carbohydrate diet. The specific carbohydrate diet is a grain-free, lactose-free, and sucrose-free meal plan that is extremely restricted. It's built on the premise that carbohydrates are the primary energy source for the intestinal microbes that contribute to the development of IBD. Some individuals believe these carbohydrates, in particular, spur the formation of acid and toxins that can injure the small intestine, destroying the very enzymes that allow for carbohydrate digestion and absorption in the first place. The problem with this is that we have no evidence to directly support the specific carbohydrate diet.

Overall, I think that this is a diet that promises more than it delivers. Again, it's very restrictive. It can be difficult and time consuming to follow. In addition, because it's so restrictive, you may not be getting all of the nutrients that you need in a balanced diet.

Furthermore, excluding starchy vegetables and grains eliminates dietary sources of short-chain fatty acids. Short-chain fatty acids are the preferred fuel source for the cells that line the colon. Boosting the amount of short-chain fatty acids in the large intestine may actually decrease symptoms of IBD.

There are also some inconsistencies. It does allow foods like legumes that are known to contain certain carbohydrates that may not be digested well.

Overall, I can't say that I would necessarily recommend the specific carbohydrate diet. But if you are adamant about trying it, I would really encourage you to work with a dietitian to make sure that you're meeting all of your nutrient needs, and discuss it with your doctor as well.

Another diet that's gaining popularity is the low-FODMAP diet. FODMAP is an acronym that stands for Fermentable, Oligosaccharides, Disaccharides, Monosaccharides, and Polyols. Quite a mouthful, so you can see why they just shortened it to FODMAP. This dietary approach is actually pretty interesting.

It has been used to minimize symptoms associated with irritable bowel syndrome. Irritable bowel syndrome is significantly different from inflammatory bowel disease. However, individuals have found that by going on the low-FODMAP diet, they can reduce their symptoms of gas and bloating. It does require a careful label reading. Discussing exactly what foods are low FODMAP is beyond the timeframe that we have here. If this is something that you're interested in, it may be helpful with symptom control and planning with a registered dietitian can result in a nutritionally complete diet.

High-protein diets. I'm sure that most of us are familiar with the Atkins™ diet. I'll tell you right now that you'll be hard-pressed to find a dietitian who is an advocate of the Atkins diet. It emphasizes meat, cheese, eggs, all of which are sources of saturated fat and protein. It limits grains, fruits, vegetables, and dairy products, all of which contain important nutrients.

There are host of problems that can come along with the Atkins diet such as electrolyte abnormalities, dehydration, and problems concentrating. Your brain actually requires a certain amount of carbohydrates to function optimally. It can cause bad breathe and constipation.

Diets high in red meat have been associated with an increased risk of prostate and colon cancers. So beyond just not being helpful for IBD, it can also contribute to other chronic diseases. Lack of fiber and other nutrients may increase the risk for heart disease, stroke, diverticulitis, and cancer. So again, if you did come to see me, this is probably a diet that I would try to talk you out of.

Along the lines of other high-protein diets, we have the South Beach diet® and the Paleo diet.

The South Beach diet is actually built on the premise of the low glycemic index. These are foods that don't cause a sharp increase in your blood sugar levels. It is largely promoted for blood sugar control and for weight loss. It's a healthier version of Atkins because it limits disease-causing saturated fats but it also limits some nutrient-dense foods like carrots, watermelon, bananas, and pineapple.

Another issue with the South Beach diet is that since it is directed towards weight loss, the menus average about 1,200 calories per day. With this calorie level, it's fairly difficult to meet your vitamin and mineral needs. It's unlikely to meet your calorie needs as well.

The Paleo diet is a very trendy diet. It's built on the premise that if a caveman didn't eat it, you shouldn't either, which is interesting because I'm not a prehistoric expert but I'm pretty sure that cavemen had a shorter lifespan than we do now and our environment is vastly different. So really, the Paleo diet is a high-protein diet in different clothing, presented in a slightly different way. It eliminates refined sugar, dairy, legumes, and grains but does allow meat, fish, poultry, fruits, and vegetables.

Although I would not necessarily recommend these diets, I think that they could potentially be nutritionally complete, but there's no evidence that they're going to help with symptoms of IBD.

Weight Watchers is another very common diet. Overall, it's a sound approach for weight loss. It focuses on increasing nutrient-dense and low-calorie food, and portion control. The problem is that it does not take into account the specific needs and tolerances of those with IBD.

If you happen to have inflammatory bowel disease and are trying to lose weight, I would encourage you to work one-on-one with a dietitian to ensure that your particular tolerances and triggers are taken into account, that you have a healthy weight loss pace that ensures that you are getting the nutrients you need, and that you're going at a pace that can be maintained. As we all well know, weight loss means nothing if it's not something that you can maintain long term.

The bottom line on popular diets is that they maybe supported by testimonials. Unfortunately, they're not supported by well-controlled scientific studies. Some diets maybe worth the try but please discuss it with your physician or dietitian again to make sure that the diet is safe and nutritionally complete, and do not abandon conventional treatment. As we said, we haven't hit on exactly which diet can impact IBD on an immune level.

So what does a healthy diet looked like? First of all, it's colorful. The more colors you have in your diet, the more likely you are to be getting a wide variety of antioxidants and phytochemicals. As far as fruits

and vegetables go, aim for about five to nine servings per day. A serving is small; it can be a small piece of fruit or even half of a large fruit, or one cup of raw vegetables or a half cup of cooked vegetables.

Cooked or peeled fruits and vegetables may be better tolerated. A good idea would be to put shredded zucchini or shredded carrots into baked goods. You can also make soups and stews with vegetables. This allows you to cook the vegetable and until it's soft and then you're consuming the broth or liquid that it's been cooked in.

One of the problems with cooking vegetable is that vitamins and nutrients are leached out in the cooking water. So if you incorporate a cooking method where you actually consume the liquid, you're getting all of those nutrients that may have been leached out in the cooking process.

Grains are very important source of carbohydrates. As I mentioned before, carbohydrates are your body's preferred energy source and what your brain needs to function optimally. Grains are sources of fiber, B vitamins, iron, magnesium, and selenium. Look for breads that contain whole grains. If you do have strictures, you would probably want to avoid breads that have the nuts and seeds or the "grass clippings", as they sometimes refer to them, on top of the bread. Three to five grams of fiber per serving is adequate. Greater amounts may be likely to cause abdominal cramping or bloating. Your grain choices and your fiber content may be something that you need to modify during or after a flare, which we'll discuss in a minute.

Lean protein is also essential. Your body uses protein to build new tissues during growth and healing, and to synthesize enzymes and blood components. Protein sources are good sources of B vitamins, iron, vitamin E, essential fatty acids, magnesium, and phosphorus. Some food sources are things like eggs, beef or pork tenderloin, lean ground beef, chicken or turkey without the skin, and fish. Hard cheeses are often lower in lactose for individuals who are lactose intolerant. Greek yogurt and nut butter are great sources of protein.

Dairy products are important sources of protein as well, and of calcium, vitamin D, and phosphorus. Obviously, food sources are things like skim or 1% milk. If you're lactose intolerant, most hard cheeses are lower in lactose. Yogurt is typically well tolerated because of the probiotics that it contains. Some alternates to milk would be things like soy milk, almond milk, or rice milk. One thing to note with almond milk or rice milk is that they're relatively low in protein. It's just something to be aware of if you're looking at your protein intake. Three servings of one of these options will generally meet your calcium and vitamin D requirements.

So what are some practical bottom line recommendations? Eat to maintain your weight or increase your calories by about 250 to 500 calories a day for weight gain. Really, your weight is the best indicator of whether or not you're consuming enough calories.

To get a good idea of your protein needs, divide your weight in pounds in half and aim for that amount of protein in grams per day. As far as fluid and electrolytes go, again, divide your weight in pounds by half and aim for that amount of fluid in ounces per day. Make sure that you increase your fluid intake if you're having diarrhea or after exercise. You can replace electrolyte losses with things like Gatorade® or Powerade®.

Taking a daily multivitamin or mineral supplement is not a substitute for a healthy diet but it can be a good back-up plan. Taking a calcium and vitamin D supplement may also be a good idea. Your body can only absorb about 500 mg of calcium at any single time, so make sure that you break up your calcium supplementation throughout the day rather than taking two or three calcium pills all at once.

You may also need monthly B12 injections if you have significant ileal disease or removal. There is also nasally-administered B12 as well. Keep in mind to discuss all supplements with your physician.

Some other nutrients that we think maybe helpful. Again, we don't have the solid evidence to promote taking these supplements across the board, but they may be something to consider and discuss with your physician.

Omega-3 fatty acids are essential fatty acids that have an anti-inflammatory effect. You can increase your intake of omega-3 fatty acids through fatty fish like salmon or tuna. Other good food sources include flaxseed oil or fortified food. Or you can look for an omega-3 fatty acid supplement.

I have listed the EPA and DHA content. These are two kinds of fatty acids and they should add up to one to three grams. Those recommendations are based on what we know as helpful for heart health. Again, since we don't have direct evidence pertaining to inflammatory bowel disease, it's always important to remember that a good diet is about keeping your whole body healthy.

Other nutrients to consider are glutamine. Glutamine is an amino acid, and amino acids are the building blocks of protein. Glutamine is the amino acid that is the preferred fuel source for the cells that line your gastrointestinal tract. This is something to talk to your physician or dietitian about because they can help direct you to ordering it. I don't think that this is something that you're easily going to find on your pharmacy shelf.

Also, include food sources with probiotics. Things like yogurt, kefir, or miso soup. These have live and active cultures. Or consider a probiotics supplement daily.

Potential problem foods. One thing that I want to highlight is food with added soluble fiber. Adding fiber to foods is a pretty popular trend right now. We're seeing yogurt, which doesn't naturally contain fiber, have fiber in it. You're seeing granola bars or protein bars that have upwards of nine grams of fiber per bar. These companies are adding what's known as inulin or chicory root to these products as a source of soluble fiber.

It's well intentioned, I guess. We all know that generally increasing fiber intake is important for the American population. But I think that what we're seeing with this increase of a soluble fiber, particularly from inulin or chicory root, is that it can contribute to symptoms of abdominal pain, bloating, or gas. So what you can do is look at the ingredient list and take note of how much you're actually consuming of this added soluble fiber and maybe consider eliminating it from your diet to see if it helps with symptom improvement.

Other things that can be problematic are artificial sweeteners or sugar alcohols. Sugar alcohols in particular can cause diarrhea. Dairy products, if you're lactose intolerant; high-fat, greasy foods; spicy foods; and cruciferous vegetables like broccoli, cauliflower, or cabbage.

During the flare you may need to limit your insoluble fiber. Insoluble fiber is the kind of fiber that you think of as roughage. Things like wheat bran or the skins of fruits and vegetables. Avoid caffeine and alcohol, both of which can stimulate and irritate the gut. Decrease concentrated sweets (foods that are high in sugar), which actually pull fluid into the bowel and can contribute to diarrhea. Smaller or more frequent meals may be better tolerated. Avoid nuts, seeds, and kernels, especially if you have strictures. A lactose-free diet may be helpful when you're having a flare or a low-fat diet is helpful if you're experiencing fat malabsorption.

You may need a high-calorie, high-protein nutritional supplement, as Dr. Long had mentioned earlier, like BOOST or Ensure. Or you can always try making your own smoothie. Some great additions are things like Greek yogurt or kefir, fruits like bananas, melon, and pears, or even avocados for a healthy dose of unsaturated fat.

Other foods to include during or after a flare are things like diluted juices (half juice, half water); applesauce; canned fruit; oatmeal; plain chicken or turkey; cooked eggs or egg substitute; mashed

potatoes; or white bread. We're talking about a fairly bland diet. It's important to note that this diet is not meant to be followed long term. You're going to want to add the fiber back into your diet and get back to eating a normal, healthy diet that we discussed earlier.

Restaurant meals can be somewhat of a landmine. Overall, it's very important that you check menus online before you go out so you can read descriptions carefully and even potentially call ahead to let them know that you may need some modification. Don't be afraid to make special requests. It is a service industry and they are often more than willing to make adjustment. Know your trigger foods. If you know that something has been a problem in the past, avoid it. Be a regular. Choose restaurants and menu options that you've enjoyed before. And finally, keep snacks on hand in case well-tolerated food options are limited.

Some menu words to look for that would signify hidden fats are things like *smothered*, *tempura*, *aioli*, *creamed* or *alfredo*, and *beurre blanc* or *crispy*. Look for *simply steamed* or *broiled* seafood. Ask for your sauces including salad dressing on the side. Finally, divide your food in half, take half home or share with another person who you are out to dinner with.

Eliminate caffeinated beverages and alcohol. In addition, alcohol interacts with many medications. So talk to your physician and your pharmacist about any potential interactions.

As far as holidays and celebrations go, know your limits and attempt to stick to your normal eating habits as much as possible. This will really enable you to enjoy your holiday gathering much more. Keep portions of indulgences small and eat smaller but more frequent meals. A great idea would be to keep track of new foods and symptoms. Inform family and friends so that they can be your ally and help with including foods that you can eat at the gathering. Finally, bring a food or dish that you know you can eat.

We've discussed some red flags in terms of evaluating nutrition information. Promises of a cure, recommendations that are based on only one study, or testimonials that are overly dramatic can be red flags that you are potentially not getting the best nutrition information.

If you're reading an article, look for the source. Look to see what the expert credentials are and if the results been published in a peer-reviewed medical or scientific journal, or if they've been replicated by other researchers. In the medical community, these are things that we look at. Even with a good study, we still like to see those results replicated to make sure that it's a true result.

Some additional resources that may be helpful to you are the website of the Academy of Nutrition and Dietetics at www.eatright.org. Here you can find a registered dietitian as well as get other nutrition and health information. Other resources for general healthy eating are at www.choosemyplate.gov. CCFA has some great resources on their website (www.cdfa.org). Finally, there is an app for the iPhone called GI Buddy, which can be helpful in tracking your food intake as well as symptoms.

This concludes my part of the presentation. Thank you so much for your attention, I really do appreciate it. Hopefully it was helpful to you.

Laura Wingate:

Thank you very much, Dr. Long and Ms. Cimperman, for your informative presentation. It is now time for the question and answer part of our program.

For everyone's benefit, please keep your questions general, without many personal details, so our faculty can provide an answer general in nature. In the interest of time, I will also ask that you keep your questions related to the topic of nutrition. You are always welcome to contact the Information Resource Center if you have other questions.

If you are joining us by the web, simply click the green Q&A button on the lower left-hand side of your screen. Type your question in the open area and click "Send" to submit.

Operator, can you please give instructions to our telephone audience?

Operator:

At this time, if you would like to ask a question, please press star then the number one on your telephone keypad. If you would like to withdraw your question, press the pound key. We'll pause for just a moment to compile the Q&A roster.

Your first question comes from the line of Rita.

Rita:

Yes. In intolerance versus inflammation, how can you tell what your symptoms are producing? Is it because of intolerance or because of inflammation?

Laura Wingate:

Dr. Long, would you like to address that question about food intolerance versus inflammation?

Dr. Long:

Yes. Thank you, Rita, for your question.

That is a question that you, as a patient, and I, as a doctor, both have trouble with because the symptoms of inflammatory disease and intolerance can be very similar in terms of increasing abdominal pain, bloating, and diarrhea. It's difficult to differentiate between the two.

One of the ways that can help is to keep a food diary and noting if there certain foods that exacerbate those symptoms. The other thing is the time course. If it is more of an intolerance, that can be episodic. Inflammatory type symptoms often continues and can worsen.

But often working with your doctor and letting them know right away when you are having these symptoms can help them to differentiate with you, whether that's through laboratory markers, stool markers, or even endoscopic evaluation. Certainly, working with some of the dietary intolerances that we've discussed in the program today and using some of those techniques may help you to differentiate on your own.

Laura Wingate:

Thank you, Dr. Long. We'll take our next question from our webcast audience. Our next question is, what foods would you advise for young adults with Crohn's disease who go away to college and have limited access to a kitchen?

Dr. Rosh, would you like to take that one?

Dr. Rosh:

Sure. Thank you for the question. It's a great question because it also brings up the more global topic of transition. That is, I was at home, now I'm out in the world on my own, and how do I make my own choices?

That is a question that should be addressed long before leaving for college and knowing good nutritional choices, which really doesn't change being in college other than the fact that access maybe complicated. So addressing the question before you leave so you can do some meal planning before you go is very helpful.

In truth, fast food is probably a staple for the average teenager or young adult. We recognized that fast food is not ideal. So go into fast food restaurants while other folks are around, like parents, or even discuss it with your medical team beforehand because there are healthy choices to be made there as well as on your own. It's something that really requires pre-planning. That's the best way to handle it.

Laura Wingate:

Lisa, do you have anything to add?

Ms. Cimperman:

I think that Dr. Rosh explained things very well. The only thing that I would add would be that it's important to remember that when you're not having a flare, the most important thing is to simply follow a healthy diet.

So there probably are options available but it's just having the willpower and the motivation to make those healthy choices.

Laura Wingate:

Thank you. We'll take our next question from the web. This question comes from Susan. Susan wonders, would it be possible to address the role of vitamin D in pediatric Crohn's? She has a 10-year-old daughter and she's having trouble with excess fat soluble vitamins but wants to understand the RDA recommendations around vitamin D.

Dr. Rosh:

OK. Thank you. So vitamin D is definitely a hot topic because it ties in both bone health and musculoskeletal health. It's important for both the pediatric and the adult patient with inflammatory bowel disease, especially Crohn's disease. What impacts the growing child the most is ultimately growth potential.

There is emerging data that vitamin D is an antioxidant and therefore may exert anti-inflammatory properties as well. It is recommended that we monitor vitamin D levels once a year, and usually it's in the spring, on all our patients with pediatric inflammatory bowel disease. There's a difference in dose between maintenance and supplementation or repletion.

If I want to replete the patient (I get a vitamin D level and I find that it's low), I will use a short course, usually four to eight weeks, with a relatively high dose of vitamin D to normalize that level.

I think the question was about maintenance vitamin D. For a 10-year-old, 800 to 1000 units a day would be what we would recommend. Any average multivitamins has 400 International Units (IU) of vitamin D. So we would require some supplementation above just a multivitamin.

In addition, we should probably talk about calcium. For a 10-year-old, we would recommend somewhere around 1000 to 1500 mg of elemental calcium a day. As Lisa mentioned in her presentation, it's best if it's split, 500 mg twice a day or three times a day.

Laura Wingate:

Thank you. Our next question also comes from the web. This is from Gary. What's the role of digestive enzymes in Crohn's disease and IBD? Dr. Long, would you like to start?

Dr. Long:

Sure. I guess I'm not sure exactly what they mean by digestive enzyme in terms of supplementation. What I would say is that in regards to trying to supplement to help with digestion, we don't necessarily have data that any particular supplement is going to help you digest better. I think the best recommendation in terms of nutrient replacement is to be very specific based on the type of disease, location of the disease, and the medications that you're on.

Laura Wingate:

Lisa or Joel, do you have anything to add?

Dr. Rosh:

I guess two thoughts. Certainly in a holistic setting, there is a sense that people with bowel disease need supplemental enzymes. That is not evidence based.

There is the patient with Crohn's disease who may have enough inflammation of their small bowel to not be able to activate pancreatic enzymes. There is a simple stool test that can look to see if you have effective pancreatic enzyme levels. So it's worth a discussion with gastroenterologist. There is screening available for pancreatic insufficiency. With pancreatic insufficiency, there would be a role for enzyme replacement therapy. Outside of that situation, there is really not a role.

Laura Wingate:

Thank you. Our next question comes from Brise. What is the best probiotic type to take for Crohn's? Dr. Long, do you want to start?

Dr. Long:

Sure. There's a lot of ongoing research into this because as I mentioned at the start of the presentation, there's a lot of excitement about really trying to understand microbiota, the bacteria that live in the gut. We do think that alteration of those bacteria can potentially play a role in disease activation, or even changes in disease state.

That said we have not yet isolated particular strains that are absolutely beneficial across populations. I think that the best data in terms of specific probiotics actually lies in the arena of individuals who have had ulcerative colitis and have had surgery to remove their colon. These individuals have an internal pouch called a j-pouch. The j-pouch can get irritated intermittently and have something called pouchitis.

There have been scientifically rigorous studies that have demonstrated that a particular probiotic named VSL#3® can help to prevent relapse of pouchitis over time. This could be potentially generalizable with others, but we just don't have that data yet. In that particular setting, the probiotic certainly can help. I don't necessarily recommend a specific brand or combination of probiotics in my patient who wants to use it for general overall bowel health.

There are certainly excellent recommendations through the Information Resource Center, and we'll have Lisa comment about various strains of probiotics. I generally tell people to look for something that is fairly broad.

One of the other populations that I do use probiotics in is individuals who have had a surgery for Crohn's disease, a pretty common surgery where they remove the end part of the small bowel and the end part of the colon. Through that surgery, the ileocecal valve (separates the colon from the small bowel), is removed. After that surgery, some have the potential to have bacteria that normally live in the colon crawl up into the small bowel. This is a syndrome called bacterial overgrowth. You can have cramping, bloating, and other symptoms. Taking a probiotic can help to minimize some of that transfer of bacteria across that open space.

So I would say the two situations where I most often used a probiotic are in individuals with bacterial overgrowth potential in the small bowel and in individuals with recurrent pouchitis.

Laura Wingate:

Ms. Cimperman, do you have anything to add?

Ms. Cimperman:

Yes. I would echo what Dr. Long said as far as recommending a specific probiotic product. It's difficult to do that because the research isn't there. Some of the popular brands that are out there are Culturelle® or Primadophilus® Optima or VSL#3.

One thing that you can look for is USP on the label. USP means that the probiotic supplement, or any supplement for that matter, has met the standards of the US Pharmacopeia for quality, purity, and tablet disintegration or dissolution. It's a voluntary labeling that supplement companies can attain. This gives you some degree of confidence in the quality of the product.

Laura Wingate:

Thank you. Operator, we'll take our next question from the telephone audience.

Operator:

Our next question comes from Stephanie.

Stephanie

If you're trying to get pregnant or if you are pregnant, are there any certain foods that you should eat or are there any holistic options?

Laura Wingate:

Dr. Long, would you like to start?

Dr. Long:

Sure. As you all well know, inflammatory bowel diseases are diseases of young individuals and fertility and pregnancy become important issues. Certainly, a healthy diet is what is most important. Many of the recommendations that Ms. Cimperman made today hold true in individuals who are attempting to become pregnant or who are pregnant.

Certainly one addition is appropriate folate supplementation. Folate is very important in neural tube development in the fetus. Appropriate supplementation can really help to prevent birth defects. The time period when that supplementation is most important is actually in the month prior to a conception. So make sure that you have adequate folate in your diet.

If you happen to be on a medication like sulfasalazine that wastes folate, it's important to kind of overcompensate for that. In other words, a standard replacement on sulfasalazine of folate is one mg. If

you're a young woman trying to become pregnant, we actually increased that recommendation to two mg a day of folate to help make sure that you have adequate resources within your body.

Laura Wingate:

Ms. Cimperman, Dr. Rosh, do you have anything to add?

Ms. Cimperman:

The only thing that I would add is just an FYI. Good food sources of folate include leafy greens as well as fortified grain products.

Dr. Rosh:

Being pediatric, I try not to deal with pregnancy, if you know what I mean. But it does come up. I think Lisa brings up a very important point that we should keep in mind. There are specific examples like folate supplementation for sulfasalazine (brand name Azulfidine®), medications that include "sulfa" in them.

In general, I know a lot of people try to address their nutritional needs through supplements. There's really excellent evidence to show that the combinations and the interactions of different nutrients in whole foods, and that's not an advertisement for a trademark, but getting it from natural sources is probably more bioavailable, and will work better in the body than any one supplement.

A couple of times in this webcast, we have been emphasizing the importance of a well-rounded, complete diet. That is still the best way to pick up all the nutrients that you need rather than trying to supplement because the interactions and the way they're absorbed by the body work better in natural foods than in a pure supplement.

Laura Wingate:

Thank you all. Our next question comes from Adina. Her question is, I hear a lot about IBD patients doing juicing. Is it safe for Crohn's patients? And how would somebody go about it?

Ms. Cimperman:

I can start with that. First of all, know that juicing is not necessarily healthier than eating the whole food, so eating the fruit or the vegetable in its whole state. I think a lot of times, juicing is being built as a healthier option or as a cleanse, and I think that misses the mark.

However, if you are going to juice, I would say use one of the machines that actually does blend up the whole food so that you're getting the whole food rather than just extracting the juice. If you're just extracting the juice, you're getting a fairly high sugar liquid. This can potentially contribute to diarrhea.

Also, don't go overboard. You need to have fruits and vegetables in your diet. I gave recommendations as far as how much. If you're going to make something like a smoothie or a shake, what I would say is limit it to two servings of fruit per smoothie or shake and try adding in some other nutrients. So add that Greek yogurt so that you get some protein and calcium as well. That can help you, just by consuming a little better well-rounded beverage.

In addition, digestion starts in your mouth. Making sure that you chew your foods, including your fruits and vegetables, very well actually helps the digestive process. Essentially, sometimes blenderizing or juicing is removing the need for your teeth. Just don't forget that they're there and chew your food well. That can definitely be a helpful suggestion.

Laura Wingate:

Dr. Long, Dr. Rosh, anything to add?

Dr. Rosh:

No. I think that was very well covered.

Dr. Long:

Absolutely.

Laura Wingate:

Our next question comes from Patie. What food should athletes with Crohn's disease eat for optimal performance? Dr. Long?

Dr. Long:

Sure. Many patients with Crohn's disease are athletes. It also gives me a moment to digress slightly on exercise, which is also an important part of overall general health.

Within the CCFA Partners study, we recently did a study looking at exercise. We looked at a group of patients with Crohn's disease who are in remission, and those who exercise actually had a two-fold reduced risk of having a flare six months later. Some of that can be related to the fact that people who are in a deeper remission were more able and felt better enough to exercise. However, there may be a role of

exercise in terms of maintaining overall health, so it's something to consider and add to your regimen as well as diet.

Now, dealing with the athlete who has Crohn's disease, I think we need to take into consideration that an athlete burns a great deal more calories. Certainly, while we made some general dietary recommendations, we certainly need to increase the caloric intake required based on your expenditure. I wouldn't necessarily change the recommendations. I would just change the potential that you may need a greater caloric intake, still using the general principles we discussed of healthy eating.

Laura Wingate:

Ms. Cimperman, anything to add?

Ms. Cimperman:

I would absolutely agree with that, increasing your calorie intake. Also, athletes do need slightly higher amounts of protein as well. It's imperative that you stay hydrated and replace electrolytes that maybe lost through profuse sweating as well.

Laura Wingate:

And Dr. Rosh, anything to add?

Dr. Rosh:

Yes. I think we've hit on two really important things today that I would like to emphasize for the pediatric patients. We talked about growth and musculoskeletal health. One of our long-term goals in the treatment of IBD is bone health. Exercise has really been shown to be critically important to maintaining bone strength and decreasing risk of fracture. So not just the athlete, but the everyday person also needs to be getting some exercise, at least three times a week. Especially if it can include weight-bearing exercises, which is probably one of the most important things you could do for your bone health.

The other thing too is the powerfully emerging research on the connection between the brain and the gut and how one feels truly affects their IBD outcome. We all know that if we eat right and we get exercise we feel better. It actually probably translates into some true anti-inflammatory effect as well. So exercise and nutrition go hand-in-hand in a holistic approach to treating your IBD. I think that's very important to keep in mind.

Laura Wingate:

Thank you. Operator, we'll take our next question from the telephone.

Operator:

Our next question comes from the line of Yvonne.

Yvonne:

Why is there a difference between certain foods like regular canned tuna? It doesn't like me, but if I eat albacore tuna, I have no problem.

Laura Wingate:

Dr. Long, would you like to start?

Dr. Long:

Absolutely. I think that this hits one of the central messages of our talk, which is that diet is a very individualized thing. What we've heard here is that there are definitely different characteristics of her symptoms based on the different format of the tuna itself.

I think that it likely has to do with other components that are being added to the version of tuna that Yvonne is eating. It goes back to kind of our discussion of really understanding these dietary intolerances. If you can keep a food diary and say, "This certain thing really did cause me more symptoms than that." These symptoms may be more intolerance symptoms than actual inflammation symptoms but certainly, we want you to avoid those intolerance symptoms as much as possible.

So, I can't tell you exactly why that component of that particular tuna is worse. But I would tell you that this is common. Knowing your individualized triggers of these symptoms is important, and potentially, avoiding those triggers can help you with overall symptom management.

Laura Wingate:

Ms. Cimperman, would you like to followup?

Ms. Cimperman:

The only thing that I would add is that, I think that this particular case exemplifies why it's also important to try different versions or different brands of foods rather than just simply crossing them off your list.

Tuna, for example, is a great source of protein and omega-3 fatty acid. If you just stopped with that one can and didn't try the albacore, you could potentially be missing out on a great protein source.

Laura Wingate:

And Dr. Rosh, do you have anything to add?

Dr. Rosh:

Only that this obviously shows a lot of insight in being able to individualize your diet and care, which I think both Ms. Cimperman and Dr. Long have stressed. I think that's an important take-home message.

Laura Wingate:

Thank you. Our last question for today's teleconference comes from Craig. Where can I get information on diet associated with colectomy, j-pouch, or ileoanal anastomosis?

Dr. Long, would you like to start?

Dr. Long:

Sure. I think that the unique thing about the surgery that this individual is asking about is that this is the surgery that individuals with ulcerative colitis undergo to remove the colon and form a new reservoir called a j-pouch. The small bowel forms that pouch.

After you've had this surgery, we're asking the small bowel to do something slightly new, which is actually to store stool content. Normally, it goes through the small bowel and into the colon, where storage occurs. Because of that, individuals can have an inflammatory response in the wall of the pouch itself called pouchitis. Not everyone gets it; about 10% of patients do. Certainly, we think that the bacterial content of the stool play a role.

Unfortunately, we can't tell you exactly which foods for each individual may further promote those symptoms from pouchitis. As I mentioned earlier, there are reasonably good data and I would say that these are the best data we have in regards to the use of probiotics. If you do find yourself in a situation where you have recurrent pouchitis symptoms which may be symptoms of diarrhea or cramping, abdominal pain, even low-grade fever, you may be given an antibiotic to treat the immediate symptoms, but a probiotic may be helpful.

The other thing is that with without the colon, the colon's main job is to draw water out of the stool, so you're certainly going to have a little bit more trouble digesting things that are bulkier, bigger, and require more absorption. Some of my patients who've had that particular surgery have a little bit more intolerance to raw fruits and vegetables (e.g., lettuce), and mostly because of the fact that the colon isn't there to pull out a lot of the additional water. Sometimes you can even see some of that pass through undigested.

So I would say again that like other types of inflammatory bowel disease, you should have an individualized approach to find out trigger foods that seem to be associated with more symptoms. If you do find yourself having recurrent inflammatory pouchitis symptoms, you may want to think about a probiotic that has a USP rating, and potentially, VSL#3 being one of those.

Lisa, what do you think?

Ms. Cimperman:

I think you covered it very well. I would add that one good resource is the American Society for Parenteral and Enteral Nutrition. Their website is nutritioncare.org. They have a link for information for patients and caregivers, and they do have good diet information, specifically for diets after the surgery that you mentioned.

The other thing too is that this may be a really good opportunity for you to set up an appointment with the dietitian. It would seem to me that there would be enough to talk about in depth that you would benefit from actually sitting down with someone. A good way to find a dietitian who would have specific knowledge in this is through your gastroenterologist. Even if there's not a dietitian in the office, they probably work with someone who they can refer you to. As I mentioned before, the Academy for Nutrition and Dietetics has a resource for finding a registered dietitian. That would probably be the only thing that I would add.

Laura Wingate:

Thank you, Lisa. This is Laura. I just would also add that CCFA has a resource that may be helpful as well, our [Surgery brochure](#) which can be obtained from the Information Resource Center. Another resource is the [United Ostomy Associations](#).

I'd like to thank our wonderful speakers for their insightful presentations and the answers to our questions. If your questions were not answered, you can call CCFA's Information Resource Center, Monday through Friday, 9 am to 5 pm Eastern Time, at 888-694-8872 or by e-mailing info@ccfa.org.

An archive of today's program will be posted on CCFA's website in early May. I'd also like to remind you that you can download the slides directly from your webpage today by clicking on the left-hand side of your screen and clicking on the Content button.

I encourage all of you to complete the post-program evaluation. Your feedback helps us shape future programs. The evaluation can be found at www.surveymonkey.com/s/nutrition-webcast.

Also, to further our understanding of inflammatory bowel disease, we encourage you to join CCFA Partners, our national registry of patient reported outcome. Visit <http://www.ccfapartners.org> to learn more and to participate.

And finally, we would like to extend a special thank you to Shire for their support of this event.

On behalf of the Crohn's & Colitis Foundation of America, thank you for joining us. Goodbye.

Operator:

This program has concluded. You may now disconnect.