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# Keep Calm and Control Your Ulcerative Colitis

Tiara Teders

**Abstract:** Diet and psychological stress have positive and negative effects on ulcerative colitis (UC) exacerbations. Research conducted in regards to diet is summarized and recommendations which have been proven beneficial to avoid UC exacerbations are provided. Research regarding psychological stress in relation to UC exacerbation proves difficult to conduct, but many UC patients and gastroenterologists believe a connection exists between the two; thus, this article discusses research to help other patients with UC to avoid exacerbations and lead a more comfortable life.

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You never imagine that anything devastating could happen to someone you know, until it does. A few years ago, my younger sister fell extremely ill and no doctor could provide our family a reason until she was sent to a gastroenterologist to receive a colonoscopy. She was diagnosed as having ulcerative colitis (UC), a bowel disease closely related to Crohn's disease and in the family of inflammatory bowel diseases (IBD). My family was shocked and didn't know how to react to this foreign concept of a disease that even researchers were, and continue to be, unsure about. Consequently, I delved into journals and articles, wanting to learn more about this condition and its treatment options. Her flares were eventually controlled by medication after a year of different regimens and multiple doctor visits, but I still recall the difficult times and hospital visits my sister experienced and continues to experience today. This made me wonder: how does diet and psychological stress in patients play a role in the remission and flares associated with UC? This article considers both the positive and negative effects of diet and psychological stress on UC, and aims to provide recommendations and tips for patients battling the disease.

Ulcerative colitis affects the gastrointestinal (GI) tract and manifests as continuous areas of inflammation and ulceration, with no segments of normal tissue.<sup>1</sup> Although UC does not manifest throughout the GI tract like Crohn's disease, it can plague any part of the colon or rectum, injuring the most superficial lining of the GI tract. A wide range of symptoms can manifest with UC, ranging in severity based on each individual patient's case. Some of the most common symptoms include: diarrhea, abdominal pain, cramping, blood in the stool, fatigue, weight loss and appetite suppression in severe cases, as well as an increased risk of colon cancer.<sup>1</sup> UC consists of periods of remission and periods of flares. In general, remission for UC refers to a period in which patients feel little distress and experience less symptoms, while a flare means the symptoms of UC are active. It often presents itself within the third decade of life, impacting both men and women equally.<sup>2</sup> Research shows that 20% of those affected by UC have a relative with an inflammatory bowel disease (IBD), so the cause of UC has been linked partially to genetics.<sup>2</sup> It is important to note that UC and other

related diseases are not to be confused with irritable bowel syndrome (IBS) which deals more with the muscle contractions associated with the colon.<sup>2</sup>

Researchers are still trying to uncover the causative factors associated with UC, but studies have shown that along with genetic predisposition, environmental factors and processes involving the immune system and inflammatory response contributes to the development of the disease. While no single factor claims responsibility as the cause of UC, many may contribute to its development and/or associated flares. Contributing factors may include increased levels of inflammatory mediators, increased oxidative stress, presence of various pathogenic intestinal bacteria, increased permeability, impaired metabolism of short chain fatty acids, use of non-steroidal anti-inflammatory drugs (NSAIDs), and consumption of certain diets.<sup>1</sup> The diagnosis of UC can be challenging, as it presents similarly to other conditions. Ultimately, for diagnosis, other conditions are ruled out and a colonoscopy gives the final confirmation of the disease. Once diagnosed, the treatment of UC consists of a regimen of different medications that are normally adjusted based on each patient's personal condition and need. The conventional drug treatment options comprise of aminosalicylates, corticosteroids, immunomodulators, and antibiotics, which are largely ineffective.<sup>1</sup> Commonly, corticosteroids are used during flares of UC, while aminosalicylates provide treatment during remission.<sup>3</sup> Often aminosalicylates and immunomodulators are prescribed in combination for UC that is classified as moderate to severe, requiring further immunosuppression and anti-inflammatory action.

UC flares have a handful of triggers, with environmental factors greatly influencing the occurrence of flares in these patients.<sup>2</sup> Additionally, diet and stress are reoccurring variables investigated in studies done over the last few decades. Although the evidence remains scarce and allows inquiry of further studies, the data compiled expressed improvements in some UC patients and warrant exploration.

Around 90% of IBD patients feel that their diet is an important part of treatment. However, only 20% of these patients believe they receive the proper guidance and warnings regarding nutrient depletion and malabsorption associated with

their disease state and how to appropriately acquire these essential nutrients through food.<sup>3</sup> Diets high in polyunsaturated fats and omega 6 fatty acids are associated with the development, as well as the flares, of IBD. Elimination or reduction of the consumption of these foods may help prolong remission in IBD patients.<sup>4</sup> Linoleic acid, found in red meats, cooking oils, and margarine, has been associated with an increased risk of UC flares and diagnosis.<sup>5</sup> In addition, common foods in the Western diet including bread, butter, margarine, cheese, red meats, ham, and sausage may increase UC flares; avoiding these products may help maintain remission.<sup>3</sup> Omega 3 fatty acids, which are found in fish, flax, seeds, and nuts, on the other hand, may be linked to increased length of remission.<sup>3</sup> Some benefit may exist in the supplementation of fish oil in the diet of patients with an IBD as supported by this finding.

Research deems sulfur-containing foods as the biggest culprit in UC flares.<sup>6</sup> Baseline levels of sulfur in the colon of patients with UC are elevated, which relates to increased symptoms. Therefore, avoiding sulfur-containing foods, e.g., red meats and processed meats, can help reduce symptoms. Avoidance of alcohol may also help maintain remission of UC, as alcoholic drinks often contain sulfate additives which can damage the colon lining if its byproducts accumulate.<sup>6</sup>

The presence of fiber in the diet has largely shown protective effects against flares by many studies conducted. Fiber is important in the gut as it helps with intestinal transit and yields short chain fatty acids when fermented; this provides fuel for the colonocytes.<sup>6</sup> This fuel helps the colonocytes and therefore can provide benefit in patients with IBD.<sup>3</sup> Dietary fiber encompasses intact, plant-based carbohydrates such as barley, legumes, nuts, seeds, oats, onions, garlic, and rye, and are indigestible by humans, but fermentable by the usual bacteria in the gut.<sup>3</sup> The data behind dietary fiber in remission proves to be more promising in the maintenance of UC rather than Crohn's disease.<sup>3</sup>

A diet called the specific carbohydrate diet (SCD), which excludes all grains, sugars (with the exception of honey), processed foods and milk, decreases intestinal inflammation and promotes the refurbishment of microbes within the colon.<sup>7</sup> Limiting carbohydrate consumption to monosaccharides (glucose, for example) eliminates the fermentation required by bacteria in the gut, thus, eliminating the agitating metabolic byproducts that contribute to inflammation in the colon.<sup>3</sup> Data surrounding the exclusion of lactose from the diet remains theoretical because restricting lactose in some patients with IBD results in symptomatic improvement, while the same intervention has minimal effect in other patients.<sup>3</sup>

Gluten-free diets exclude the consumption of wheat, barley, and rye and have been commonly used in the treatment of gluten allergies, but now the diet has grown in popularity among people with other digestive disorders as well.<sup>3</sup> IBD patients that have tried a gluten-free diet report the improvement of symptoms, suggesting that this diet may help keep patients with diseases such as UC from experiencing flares. As with the other dietary suggestions and changes, limited data exists due to the lack of research conducted at this time. Analyses conducted have also found that spicy foods, especially curry, have

been reported by patients as harmful to their disease state, while fish, bananas, and yogurt were reported as beneficial.<sup>8</sup> For patients interested in trying a diet change to aid in the treatment of their UC, it is important to note that restricting parts of the diet can cause decreased essential nutrient intake; therefore, substantial dietary changes should not be implemented without the consultation of a health care provider.

The idea that psychological stress impacts the flares of UC has long been established, and gastroenterologists and patients alike support this historical idea.<sup>9,10</sup> This concept is challenging to prove since psychological stress is difficult to measure in research studies due to stress presenting differently in each patient. One study published in the American Journal of Gastroenterology found a relationship between an increased number of stressful events with an increased risk of relapse and flares in patients with UC that are currently in remission.<sup>11</sup> The same study concluded that the number of stressful events in the life of a patient could help serve as an indication for increased risk of a flare.<sup>11</sup> Another study found that patients with UC who had more psychological stress showed endoscopically visible rectal lining abnormalities.<sup>10</sup> These patients were more likely to be depressed and anxious, as well as more likely to recall significantly stressful life events. More recently, researchers determined that the main psychological culprit contributing to UC flares is long-term stress, or stress spanning over many months.<sup>10</sup> Researchers speculate that behavioral interventions to reduce long-term stress could help prevent relapse of UC in patients in remission.<sup>11</sup> Researchers believe that a variety of mechanisms associated with psychological stress affect the systemic and gastrointestinal immune responses and inflammatory responses.<sup>12</sup> Interpreting these findings into therapeutic treatments remains a mystery, yet a good direction for future exploration in order to maintain remission in patients with UC.<sup>12</sup>

Overall, the environmental factors of diet and psychological stress can be altered to decrease the risk of flares and increase the success of UC maintenance. Many dietary options exist and are worth discussing with a gastroenterologist to properly pair a diet with existing pharmaceutical treatment. Long-term psychological stress, although not well researched, is worth considering as a factor to avoid as best as possible. One thing I have learned from my sister's courage and fight is that this disease does not define a person, and with a positive and encouraging attitude, along with simple lifestyle changes, one can improve quality of life while maintaining UC remission.

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