

Diet as a Therapeutic Option for Adult Inflammatory Bowel Disease



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KEYWORDS

- Diet • Inflammatory bowel disease • Ulcerative colitis • Crohn's disease
- Specific carbohydrate diet • Low FODMAP diet • Exclusive enteral nutrition

KEY POINTS

- Diet can have an impact on inflammatory bowel disease (IBD) through multiple mechanisms.
- Exclusive enteral nutrition can be used to induce remission in adult Crohn's disease patients when corticosteroids are contraindicated.
- There is preliminary evidence to suggest efficacy of the Specific Carbohydrate Diet and the low FODMAP diet in IBD.

INTRODUCTION

There is suspicion that the pathogenesis of inflammatory bowel disease (IBD) may involve the Western diet which is known to be low in fruits and vegetables and high in fat, n-6 polyunsaturated fatty acids (PUFA) and red/processed foods.¹ Westernization has become a global phenomenon, this may explain why there is an increasing incidence of IBD in countries where it was previously rare.² Diet has not traditionally been part of the gastroenterologist's armamentarium against IBD that affects adults. In fact, many patients are informed that diet likely does not play any part in the development or perpetuation of inflammation, and there is no one particular diet that has been shown to be effective in treating IBD. Patients are often told, "Eat what you can tolerate." Despite this refrain, approximately 40% of patients with Crohn's disease (CD) believe that diet can control symptoms and approximately 80% believe diet is important in the overall management of disease.³ In addition, 40% of patients with IBD have attempted various diets, often without the assistance of a physician or dietitian.⁴ There are now mechanisms posited to explain how foods can be both

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proinflammatory and antiinflammatory. The resistance to adopting diet amongst gastroenterologists is multifactorial. It partly stems from lack of data demonstrating mucosal healing, which does not correlate well with perceived improvement in symptoms, particularly in CD. There is fear of causing more weight loss in a patient population that may already be malnourished, and implementing a dietary protocol may be too time consuming in a clinic setting. The belief that patients will jettison evidence-based medical therapy and instead adopt an unproven dietary intervention is particularly pervasive. These assumptions may be unsubstantiated. Diet deserves further consideration given the evidence assessed in this review.

It is not possible to fit all preclinical data and its potential implications into a single short article. It should be noted that current clinical data in dietary therapy for IBD is in its infancy, and randomized, clinical trials are largely lacking. In the absence of such data, we also present what we do in our clinics to generate a starting point or guide for clinicians who seek such information for their patients and for researchers coming into the field who are looking into new areas of investigation. Macronutrient associations with IBD are reviewed with an emphasis on the mechanistic basis behind how food contributes to intestinal inflammation. There are many diets described in the medical literature and lay press for IBD: the IgG-4 guided exclusion diet, the semivegetarian diet, the low-fat, fiber-limited exclusion diet, the paleolithic diet, the maker's diet, the vegan diet, and the low-carbohydrate diet.⁵⁻¹¹ This review predominantly focuses on exclusive enteral nutrition (EEN), which has the most robust evidence to support its use for inducing remission in CD, and the Specific Carbohydrate Diet (SCD), which perhaps already has the largest following among patients with IBD, and has some preliminary evidence published to support its efficacy. The Low FODMAP diet is also discussed because of its current widespread use in the IBS patient population and similar mechanism to the SCD.

MACRONUTRIENT ASSOCIATIONS WITH INFLAMMATORY BOWEL DISEASE

The association of carbohydrates, protein, fats, and fiber with IBD has been investigated. The evidence primarily comes from epidemiologic studies looking at dietary associations before the onset of IBD with only a few studies looking at flares in existing patients with IBD. Several general and systematic reviews have been published summarizing these epidemiologic associations of diet and IBD development.^{1,12-15} Many of the studies suffer from recall and selection bias, small sample size, and short follow-up periods. The data is often conflicting and inconclusive. The current body of literature tends to consider only the macronutrient in question and does not attempt to control for confounders, which understandably would be a difficult undertaking. It is also premature to dismiss diet as a therapeutic tool just because there is not a consistent association among macronutrients with development of IBD; it does not necessarily mean limiting a macronutrient cannot help to alleviate symptoms or inflammation once the disease process has begun.

The Western diet, high in carbohydrates and refined sugars, has been shown to induce dysbiosis in mouse models. Furthermore, a diet composed of highly processed sugars and carbohydrates can lead to obesity, which is associated with a proinflammatory state and increased bowel permeability. There have been several studies published from the 1970s through the 1990s investigating the association between various classifications of carbohydrates and CD, and the results have been conflicting.¹⁶ Unfortunately, almost all of these were retrospective, case-control studies subject to recall and selection bias. Patients were often asked to remember diets eaten years before diagnosis, and the accuracy of this data has been called into question. Most studies also did not subdivide

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