Intestinal homeostasis requires a balanced interaction between the intestinal immune system (with innate and adaptive immune responses) and the microbiome

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Role of Diet in Inflammatory Bowel Disease
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Key insights
Inflammatory bowel diseases (IBD) are chronic inflammatory conditions that can affect the entire gastrointestinal tract. The rising incidence of IBD among populations with a Western lifestyle points towards changing food habits and/or food production as a key driver. Dietary elements that negatively affect the intestinal epithelium may trigger a pro-inflammatory state that precedes the development of IBD. Patients with IBD frequently exhibit a dysregulation of intestinal homeostasis that is reflected by a decreased tolerance towards commensal bacteria, as well as a concomitant reduction in microbial diversity.

Current knowledge
IBD have the potential to cause significant intestinal damage, particularly when the disorders begin early in life (childhood or adolescence). In individuals with a genetic predisposition towards IBD, diet plays a central role in driving disease pathogenesis. High fatty acid and protein intakes have been linked to increased risk of developing IBD. Certain food components (maltodextrin, emulsifying agents such as carboxymethyl cellulose, carrageenan, and xanthan gum) can disrupt the quality of the intestinal barrier, as well as the composition of the intestinal microbiome. Symptom management is an important element of IBD treatment and consists mainly of immunosuppressive therapies; however, these measures are often insufficient to change the course of the disease.

Practical implications
The most compelling evidence for the potential of nutritional interventions for treating IBD comes from the success of enteral nutrition as induction therapy for Crohn’s disease. The use of defined diets for IBD is currently under investigation. These include the specific carbohydrate diet, the FODMAP diet, and the Paleolithic diet. The efficacy of these diets is largely anecdotal at present, and it should also be noted that some of these diets have the potential to cause vitamin D deficiency. Further clinical studies are warranted to test the safety and efficacy of specific diets for addressing IBD.

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